

# ***Operations Performance Metrics Monthly Report***



## ***May 2022 Report***

## **Operations & Reliability Department New York Independent System Operator**

Prepared by NYISO Operations Analysis and Services, based on settlements initial invoice data collected on or before June 8, 2022.

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## May 2022 Operations Performance Highlights

- Peak load of 27,046 MW occurred on 5/31/2022 HB 17
- All-time summer capability period peak load of 33,956 MW occurred on 07/19/2013 HB 16
- 13.7 hours of Thunderstorm Alerts were declared
- 40.2 hours of NERC TLR level 3 curtailment
- To reduce risks from COVID-19, the NYISO continues to take several actions to maintain critical business operations and protect the health and well-being of our employees and stakeholders.
- The major portions of the Western NY Public Policy project were placed in service May 26<sup>th</sup>, including Dysinger-East Stolle Rd 345kV (#DES1) and PAR, and East Stolle Rd-Five Mile Rd 345kV (#29).
- Construction and commissioning delays have resulted in the new Gordon Rd 345kV substation not being available for service for summer 2022. The Edic-New Scotland 345kV (#14) was restored to service on May 27<sup>th</sup> for the summer period.

The following table identifies the estimated production cost savings associated with the Broader Regional Market initiatives.

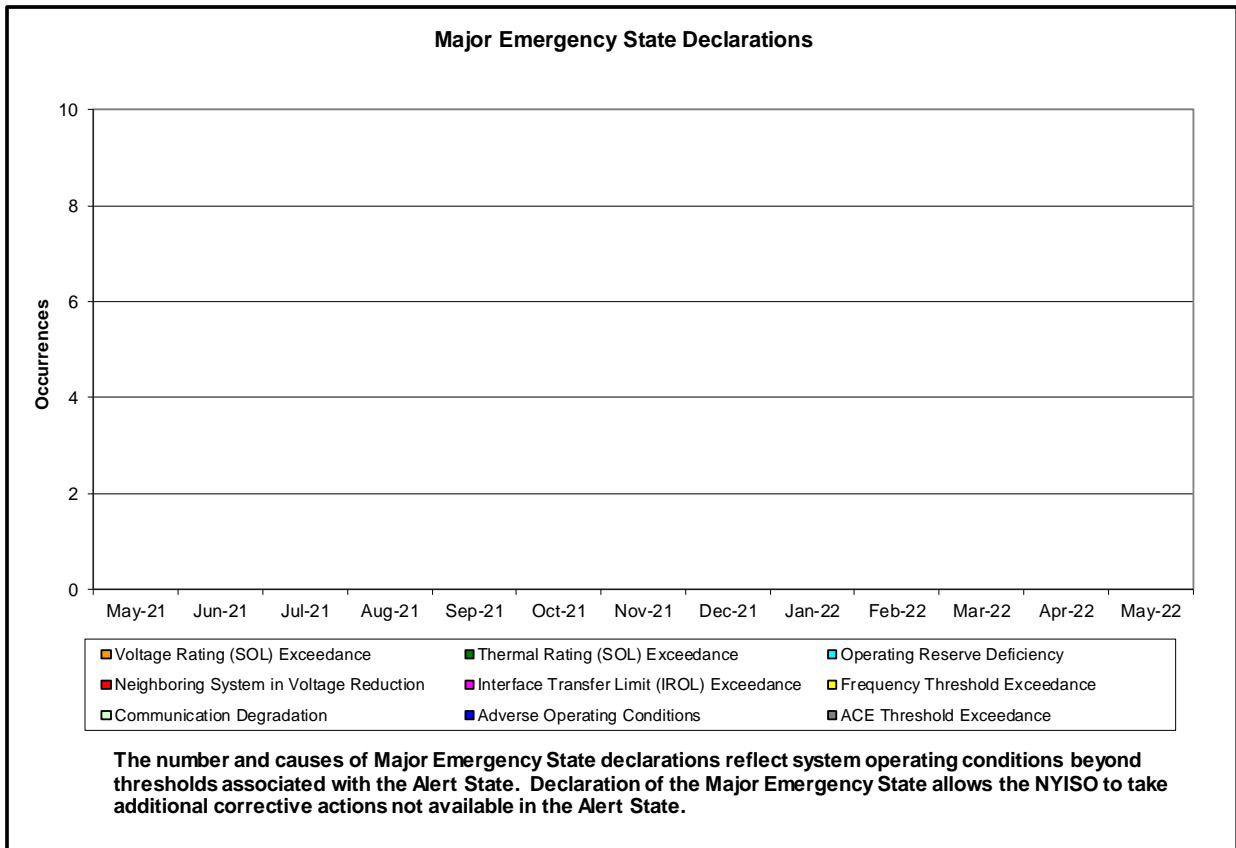
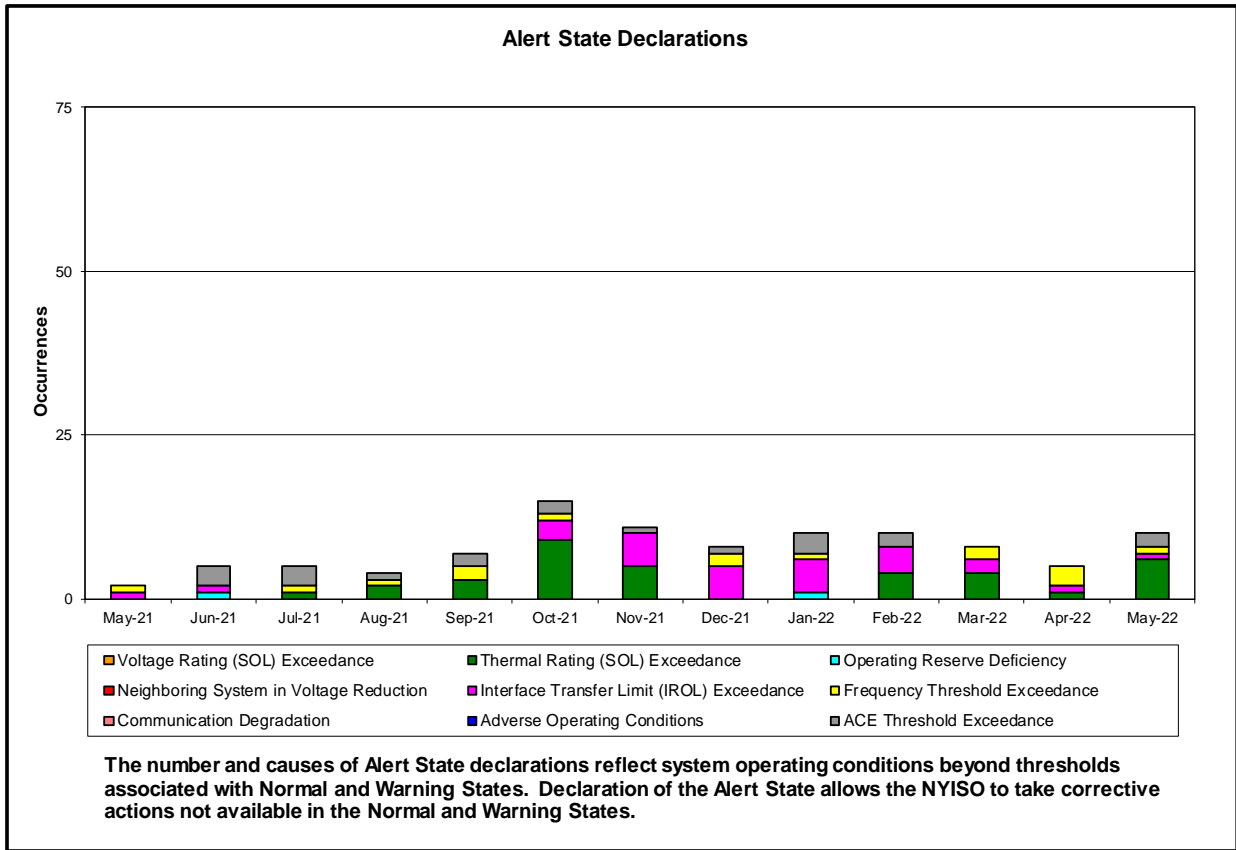
|  | Current Month Value (\$M) | Year-to-Date Value (\$M) |
|--|---------------------------|--------------------------|
| <b>NY Savings from PJM-NY Congestion Coordination</b>                  | \$7.68                    | \$20.36                  |
| <b>NY Savings from PJM-NY Coordinated Transaction Scheduling</b>       | (\$0.23)                  | (\$1.14)                 |
| <b>NY Savings from NE-NY Coordinated Transaction Scheduling</b>        | \$0.96                    | \$2.69                   |
| <b>Total NY Savings</b>  | <b>\$8.41</b>             | <b>\$21.91</b>           |
| <b>Regional Savings from PJM-NY Coordinated Transaction Scheduling</b> | \$0.48                    | \$2.98                   |
| <b>Regional Savings from NE-NY Coordinated Transaction Scheduling</b>  | \$0.16                    | \$1.92                   |
| <b>Total Regional Savings</b>  | <b>\$0.64</b>             | <b>\$4.90</b>            |

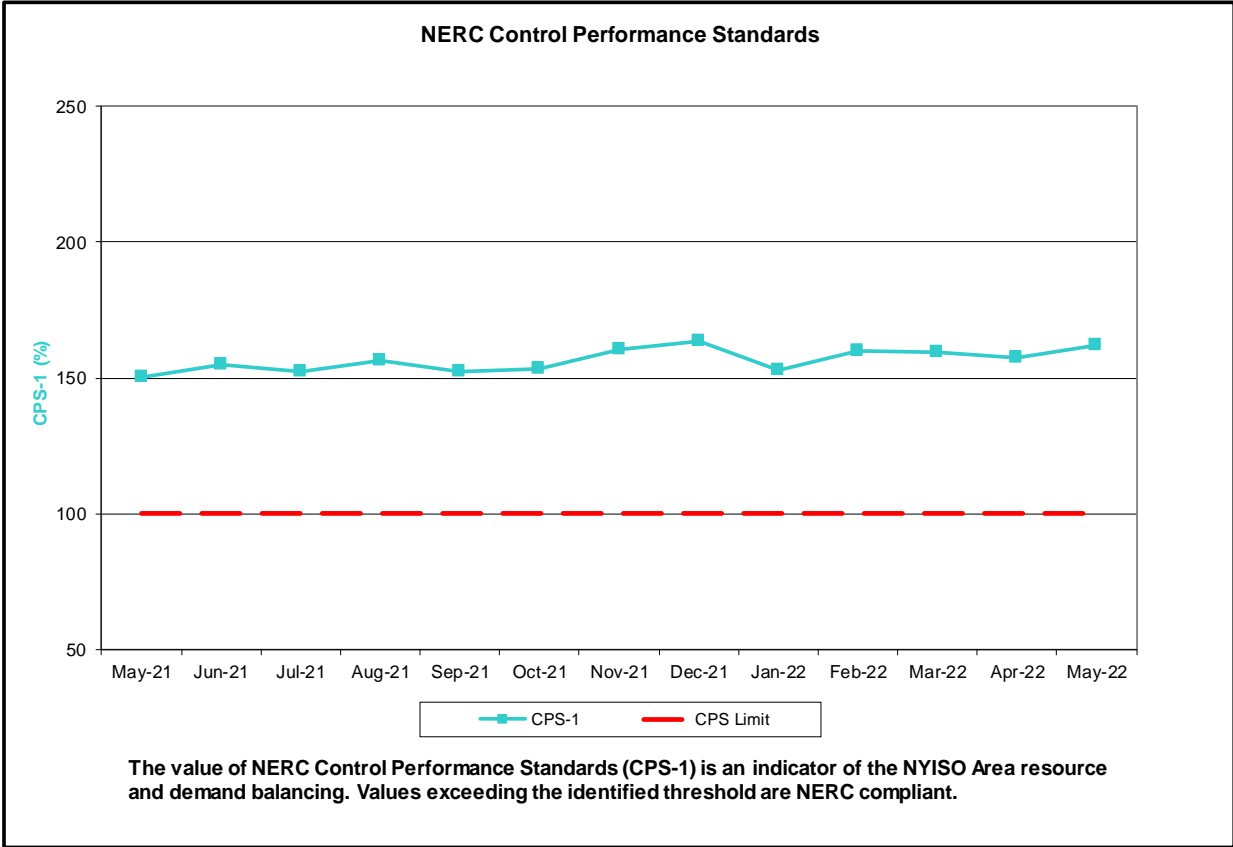
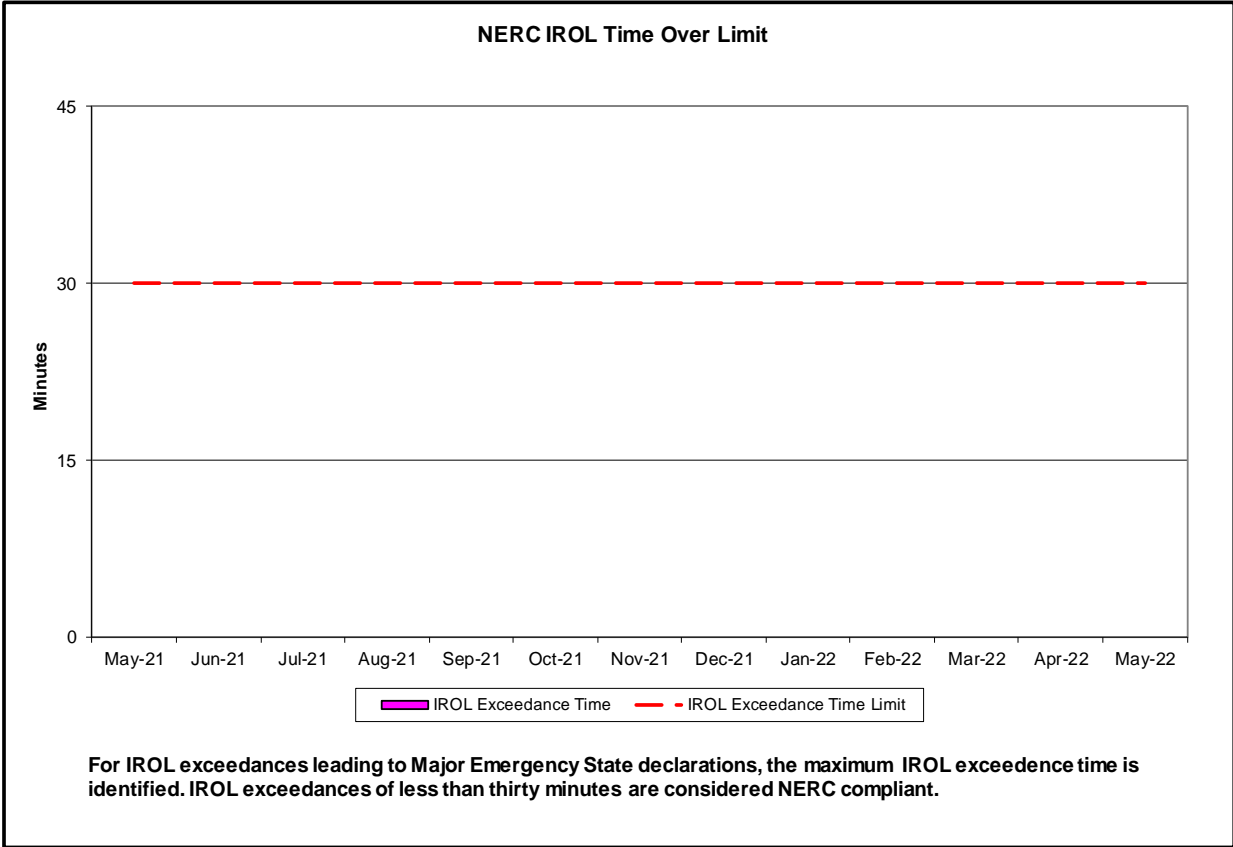
- Statewide uplift cost monthly average was (\$0.65)/MWh.
- The following table identifies the Monthly ICAP spot market prices and the price delta.

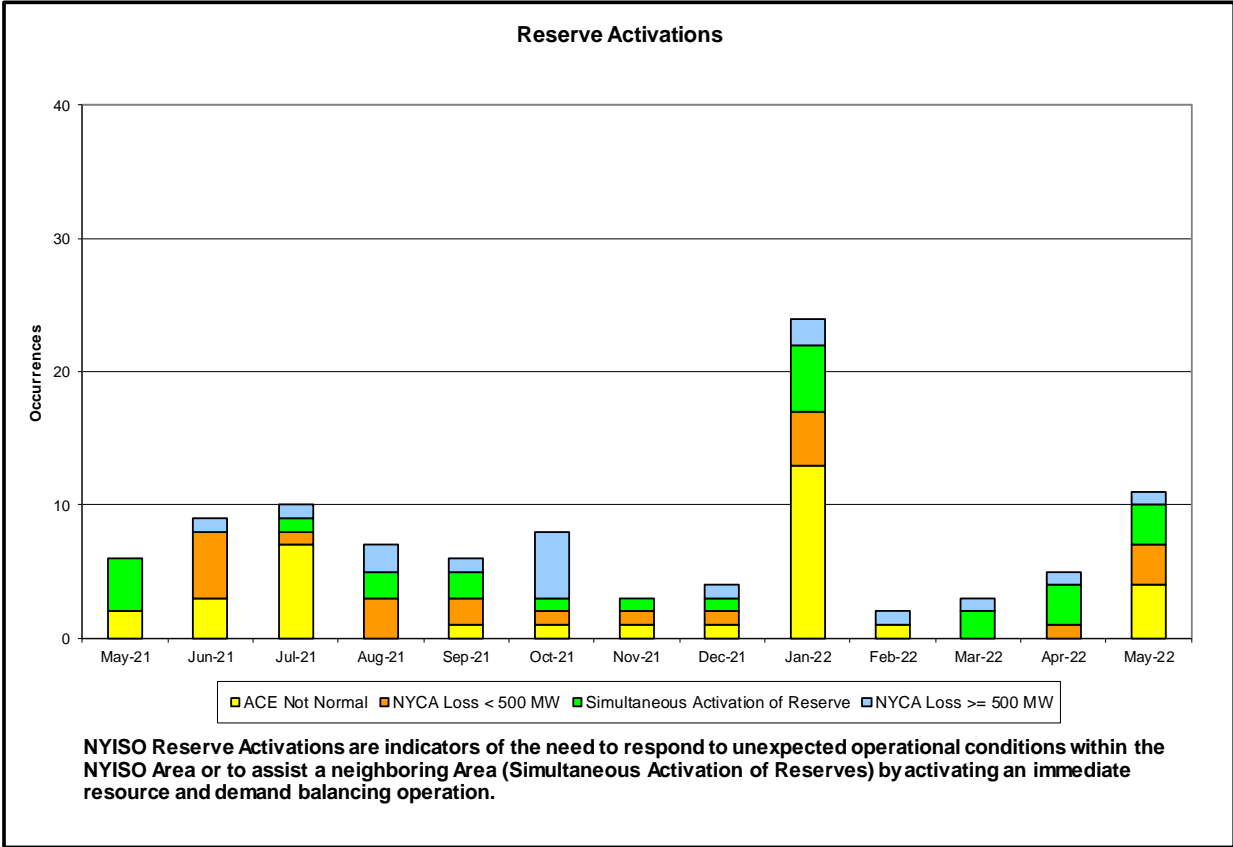
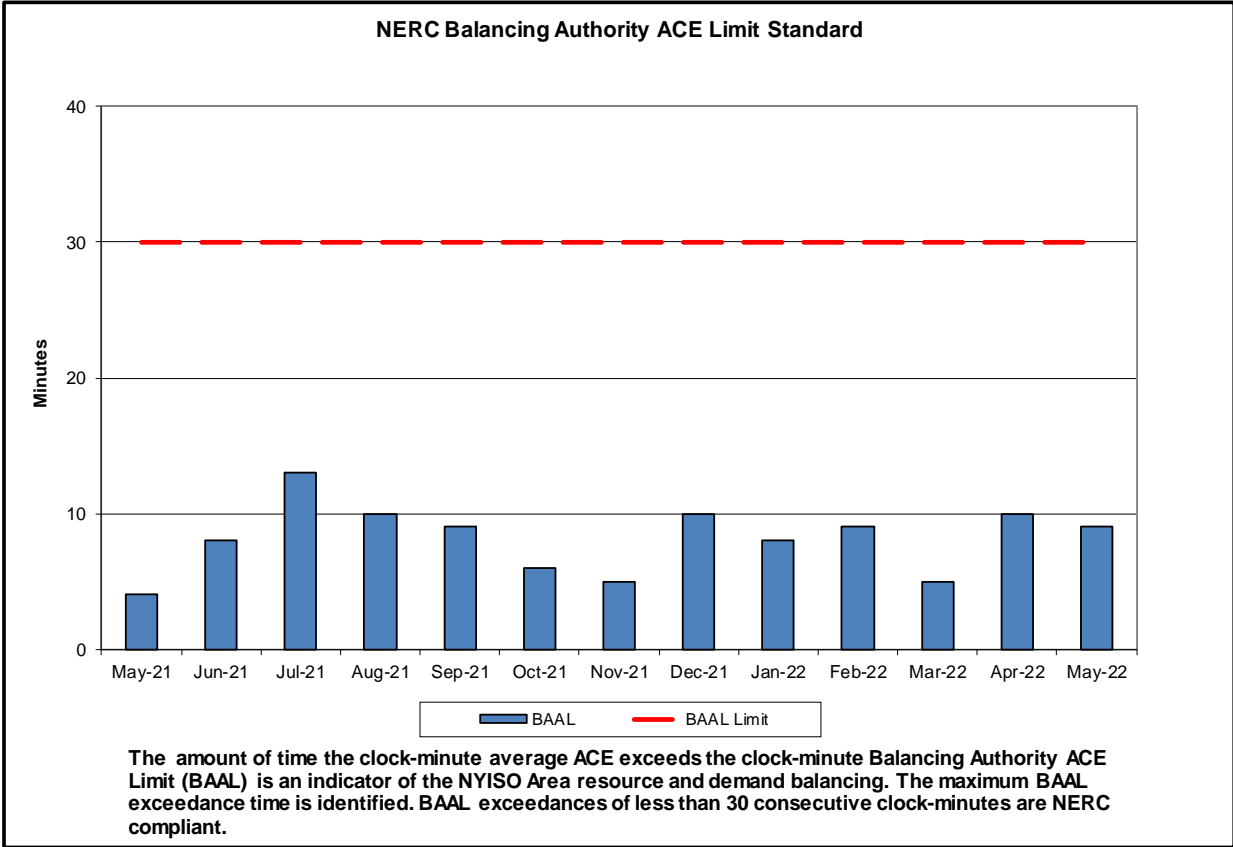
| Spot Auction Price Results | NYCA   | Lower Hudson Valley Zones | New York City Zone | Long Island Zone |
|----------------------------|--------|---------------------------|--------------------|------------------|
| June 2022 Spot Price       | \$3.33 | \$3.33                    | \$3.51             | \$6.74           |
| May 2022 Spot Price        | \$2.72 | \$3.46                    | \$3.70             | \$5.93           |
| Delta                      | \$0.61 | (\$0.13)                  | (\$0.19)           | \$0.81           |

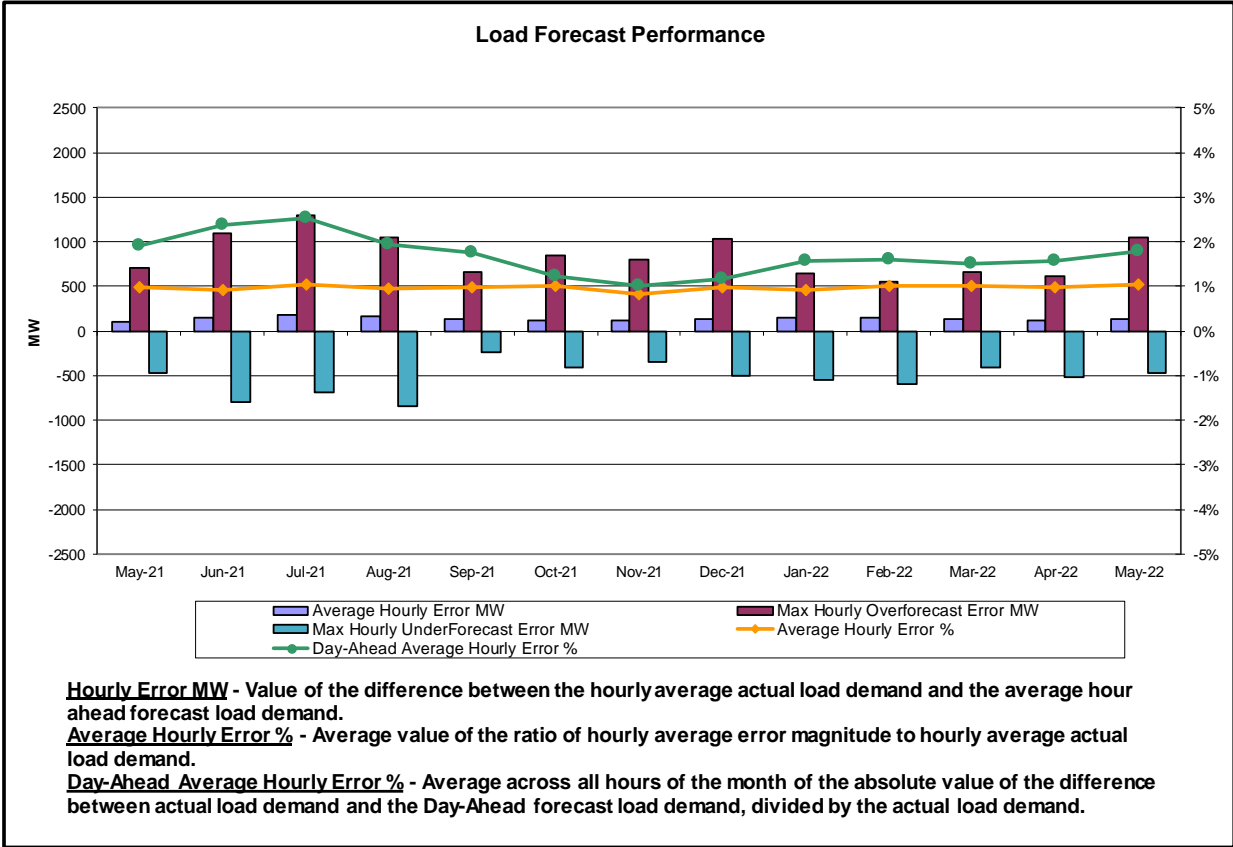
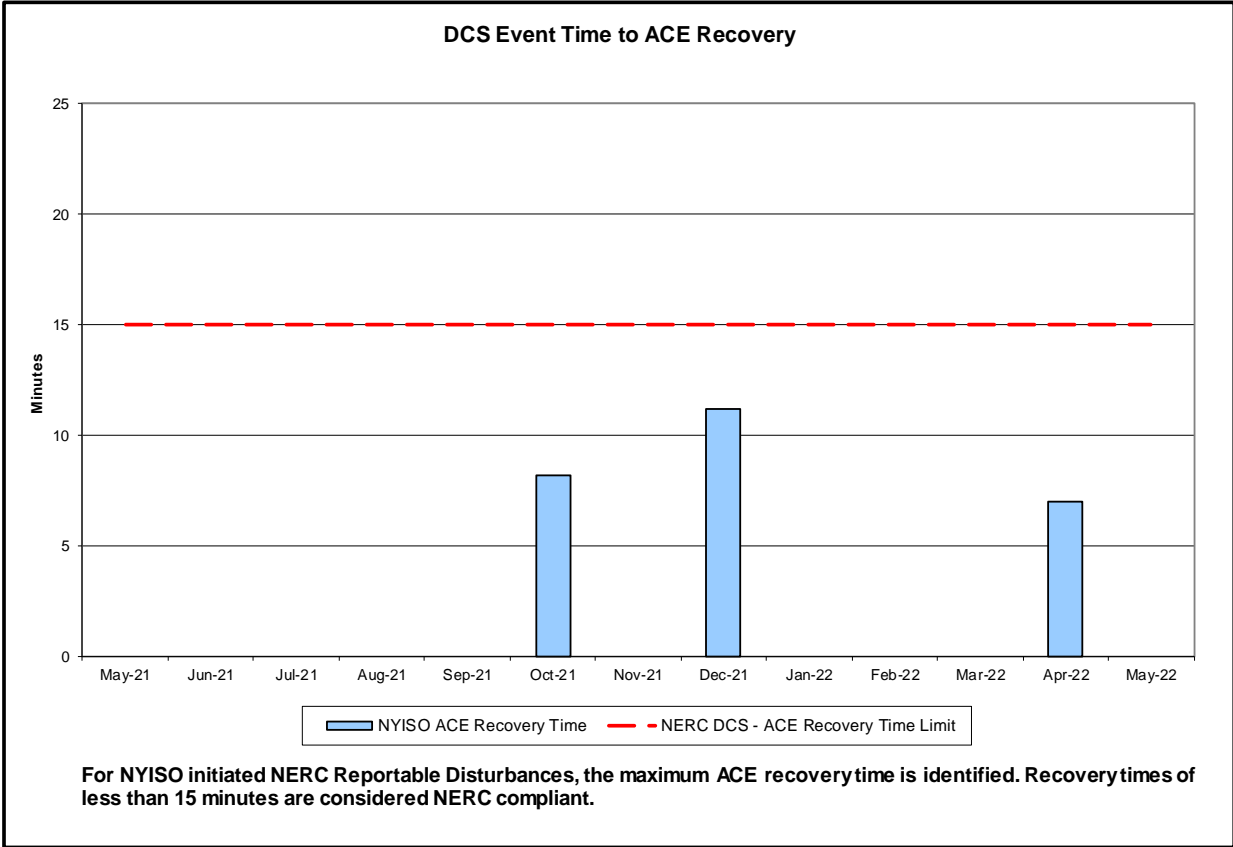
- NYCA experienced \$3.33 clearing price. Increase in clearing price was due to a decrease in net Imports. The decrease in clearing price for Lower Hudson Valley(\$3.33) and New York City(\$3.51) were due to a decrease in unoffered MWs. Long Island clearing price increase is attributed to an increase in unoffered MWs.

## Reliability Performance Metrics

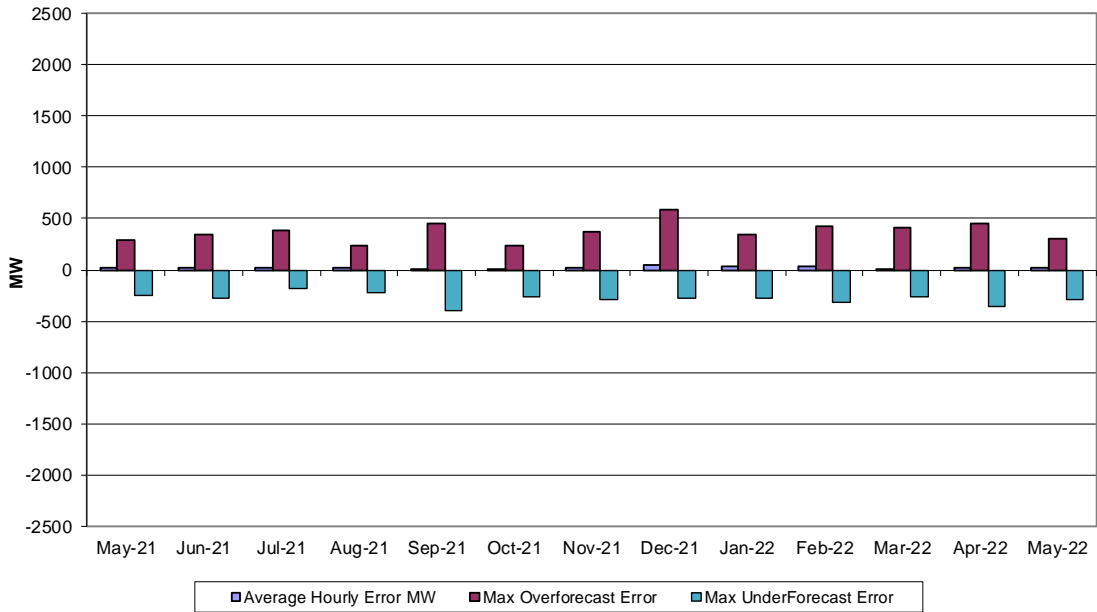






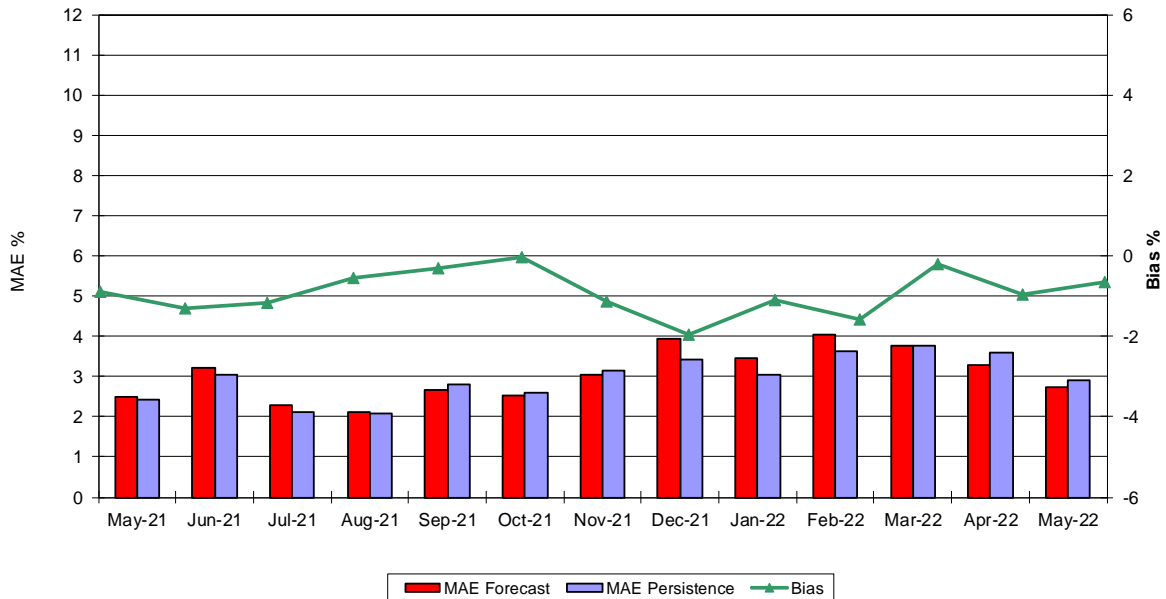


### Wind Forecast Performance Hour Ahead MW Error



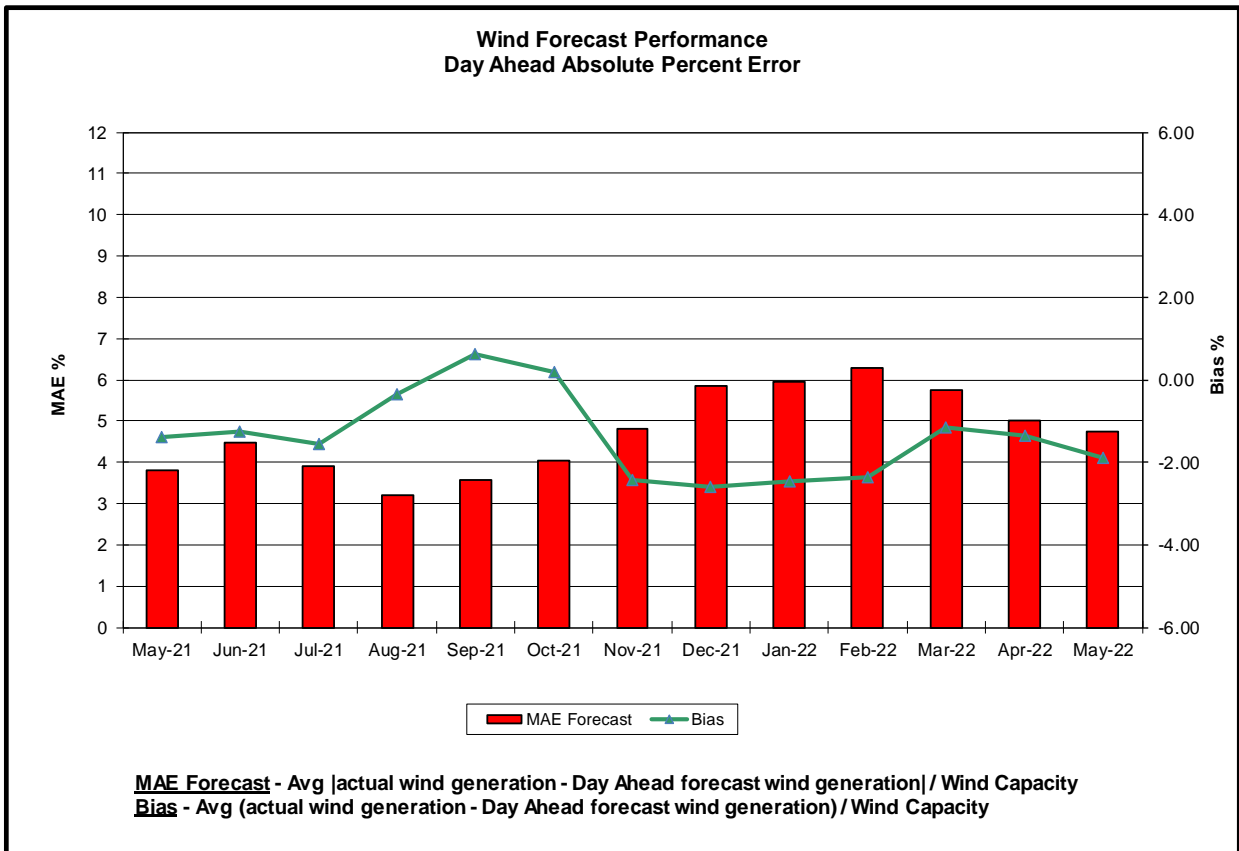
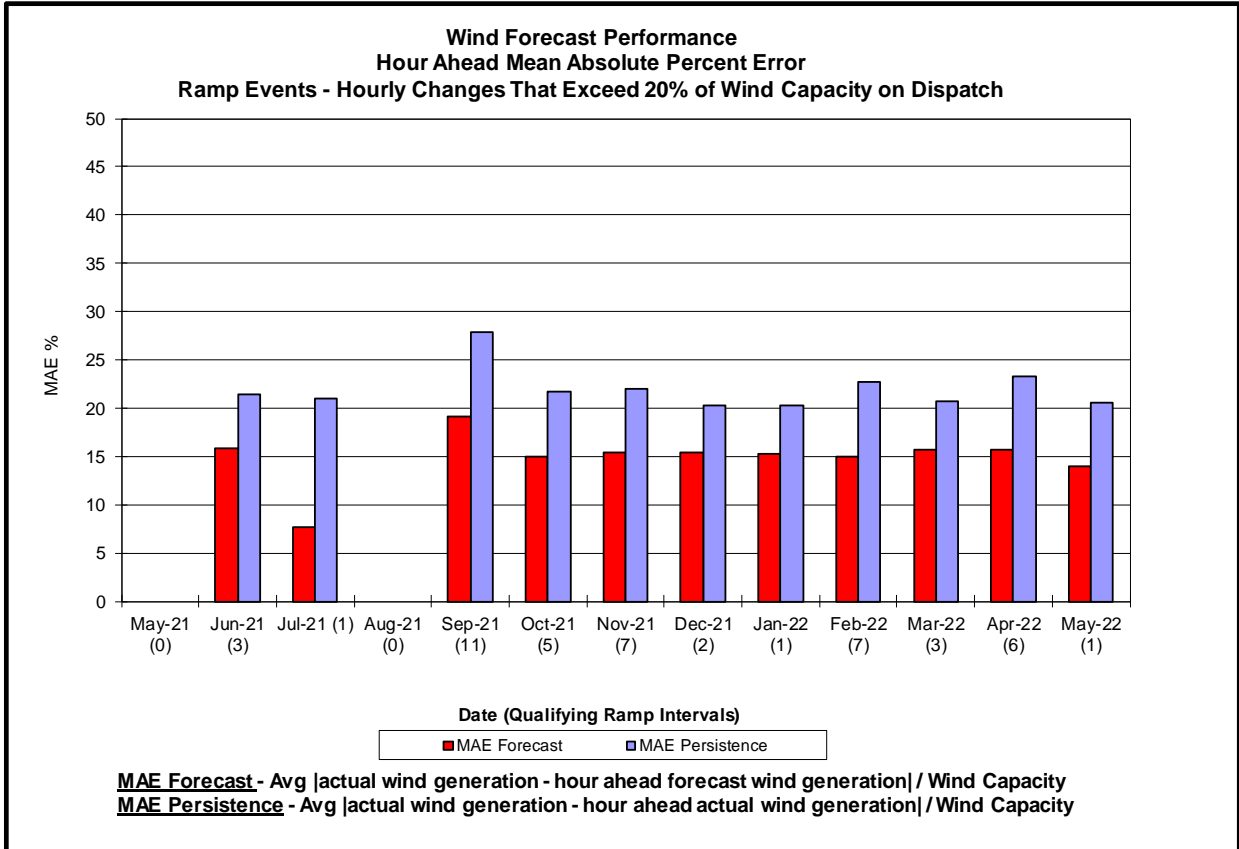
**Hourly Error MW** - Value of the difference between the hourly average actual wind generation and the average hour ahead forecast wind generation.

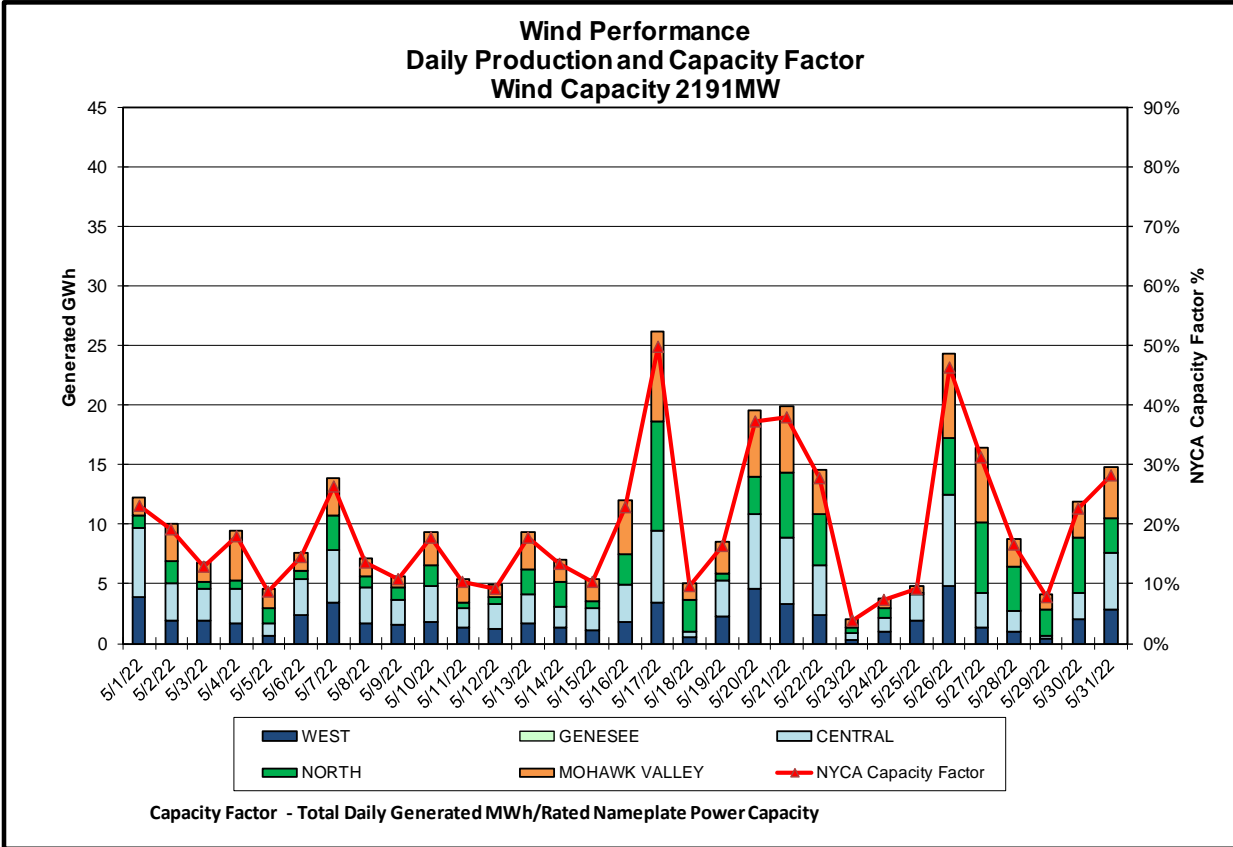
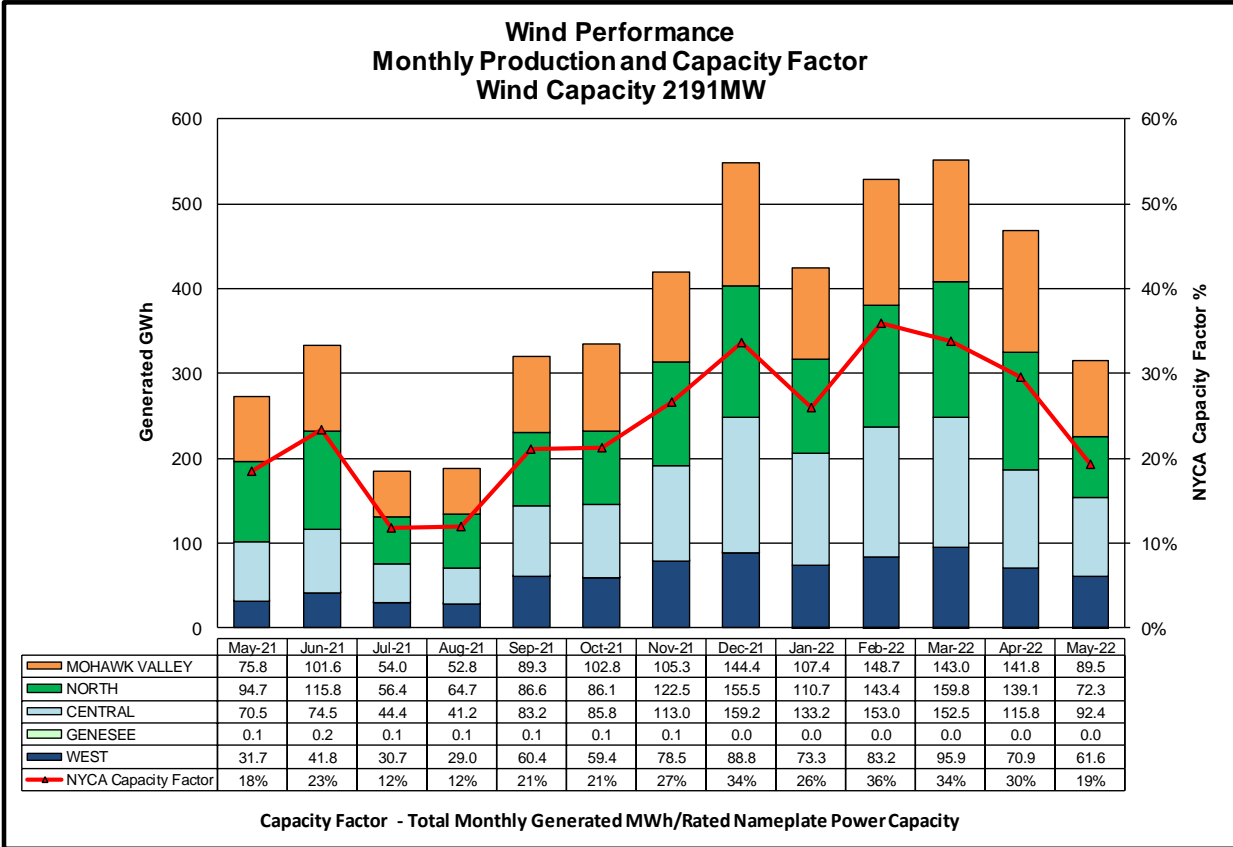
### Wind Forecast Performance Hour Ahead Percent Error

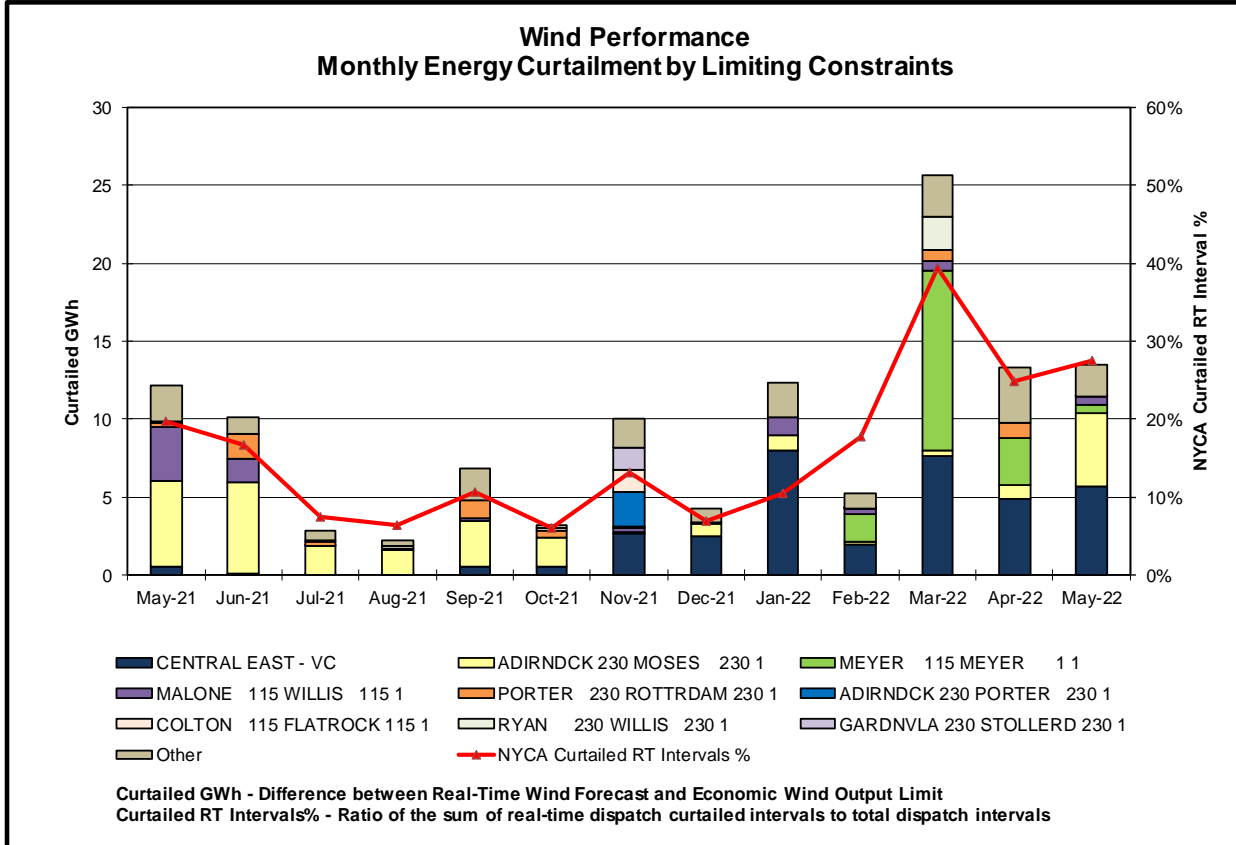
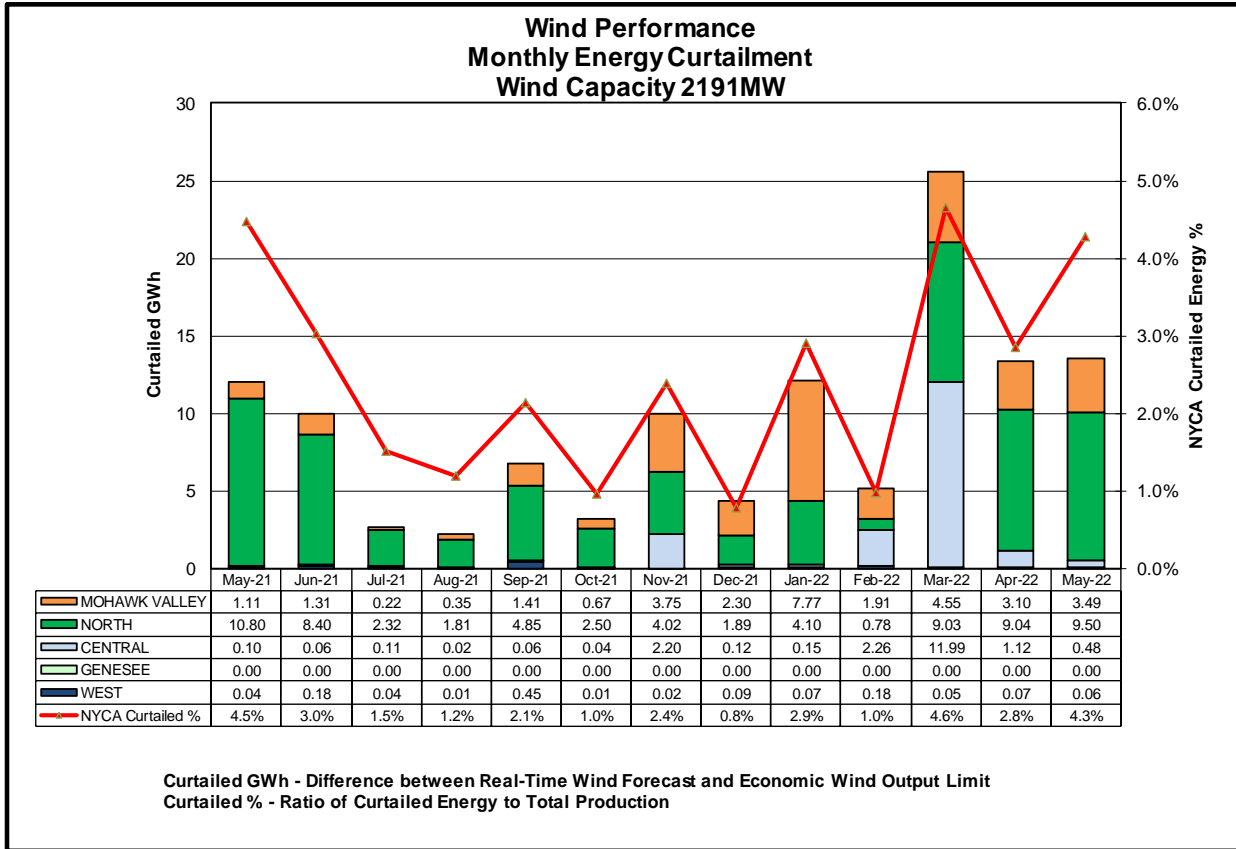


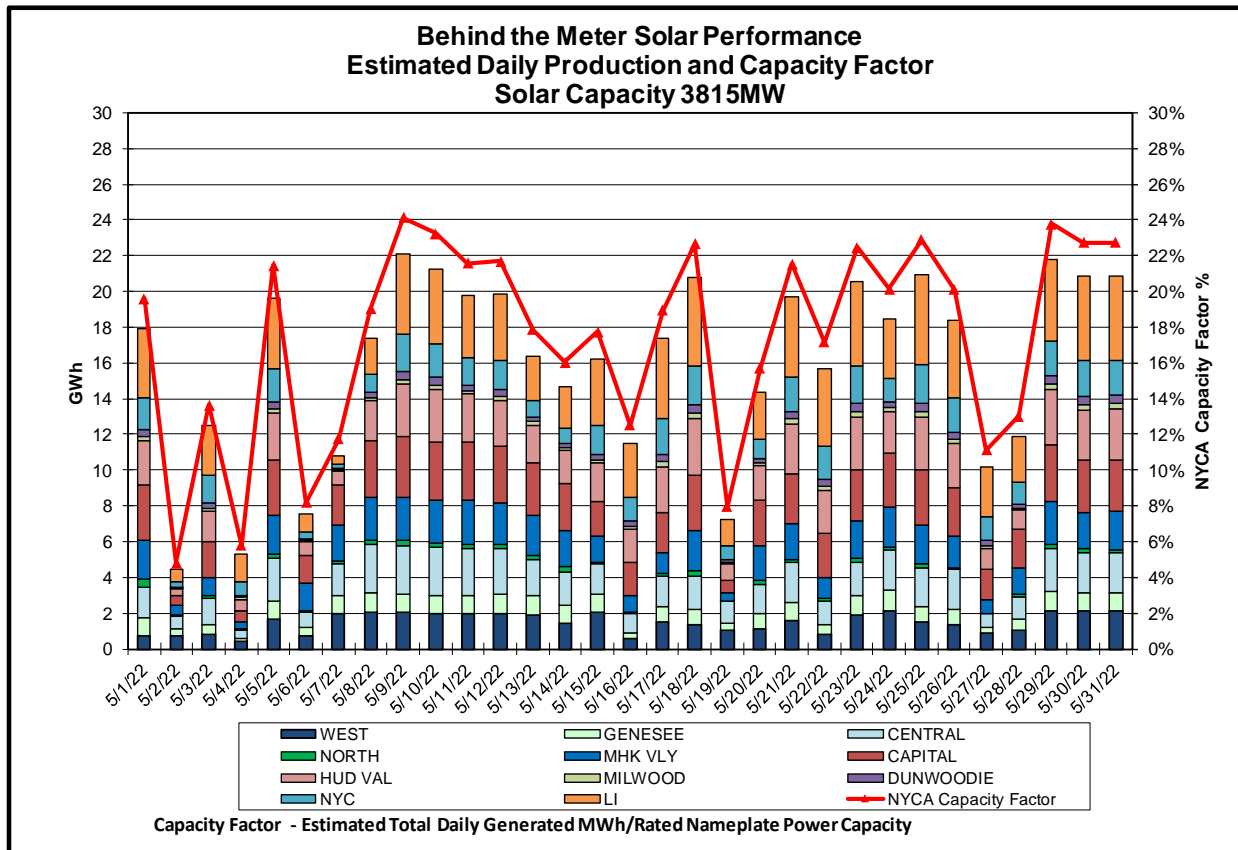
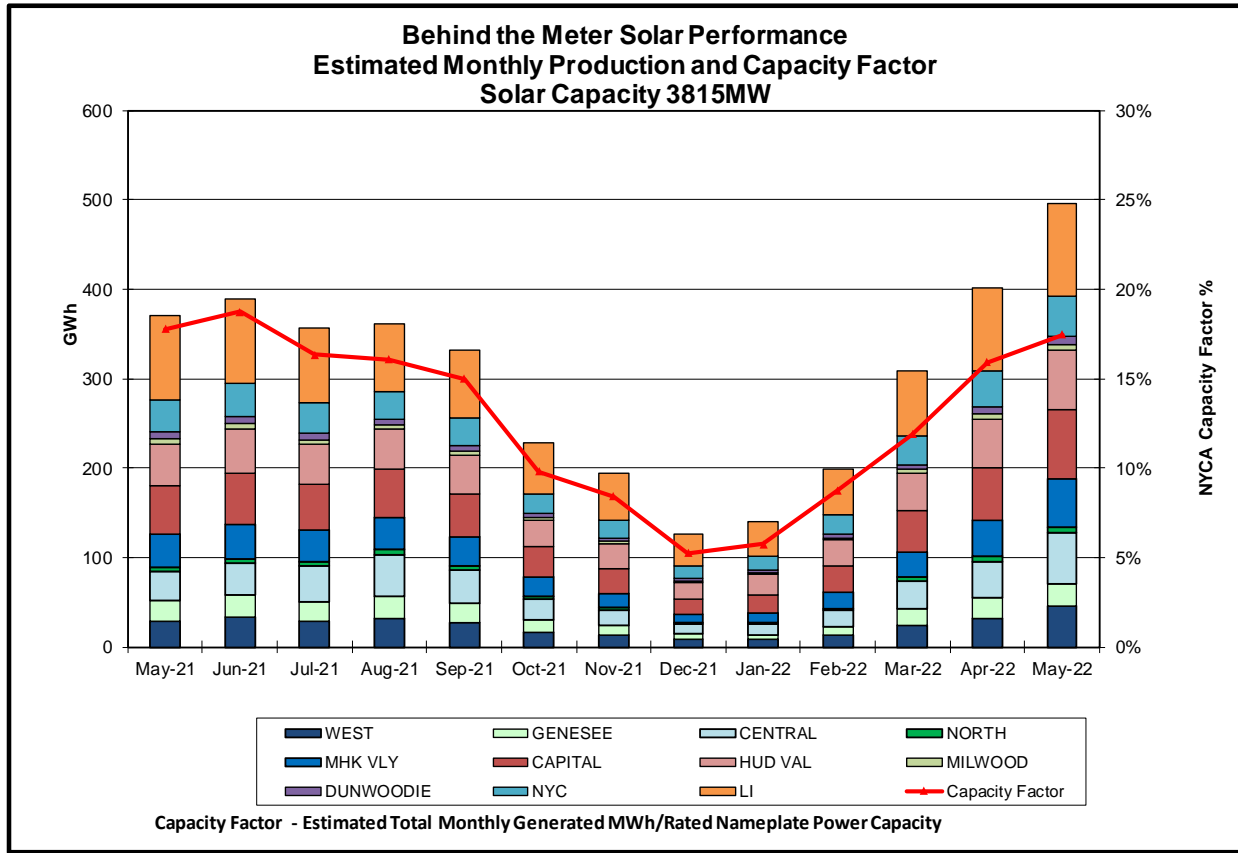
**MAE Forecast** - Avg |actual wind generation - hour ahead forecast wind generation| / Wind Capacity  
**MAE Persistence** - Avg |actual wind generation - hour ahead actual wind generation| / Wind Capacity  
**Bias** - Avg (actual wind generation - hour ahead forecast wind generation) / Wind Capacity

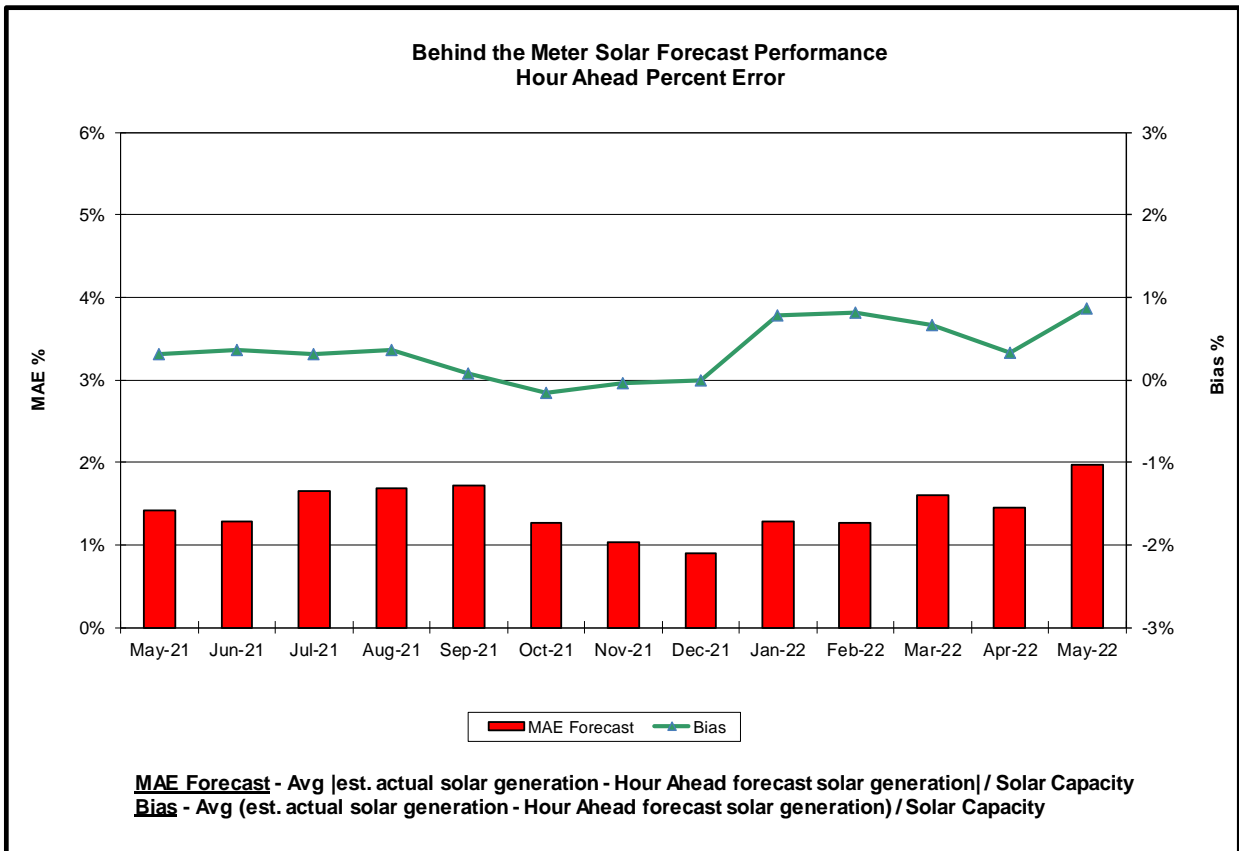
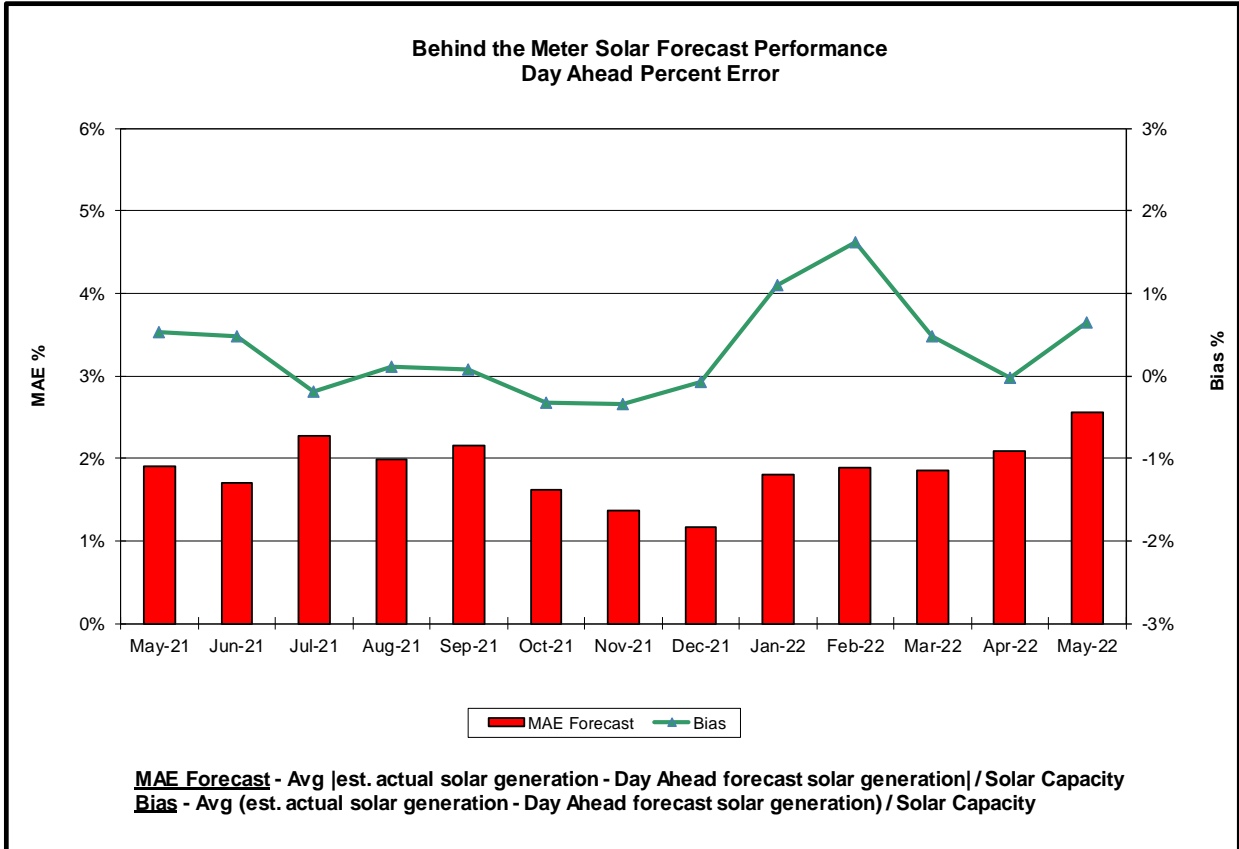


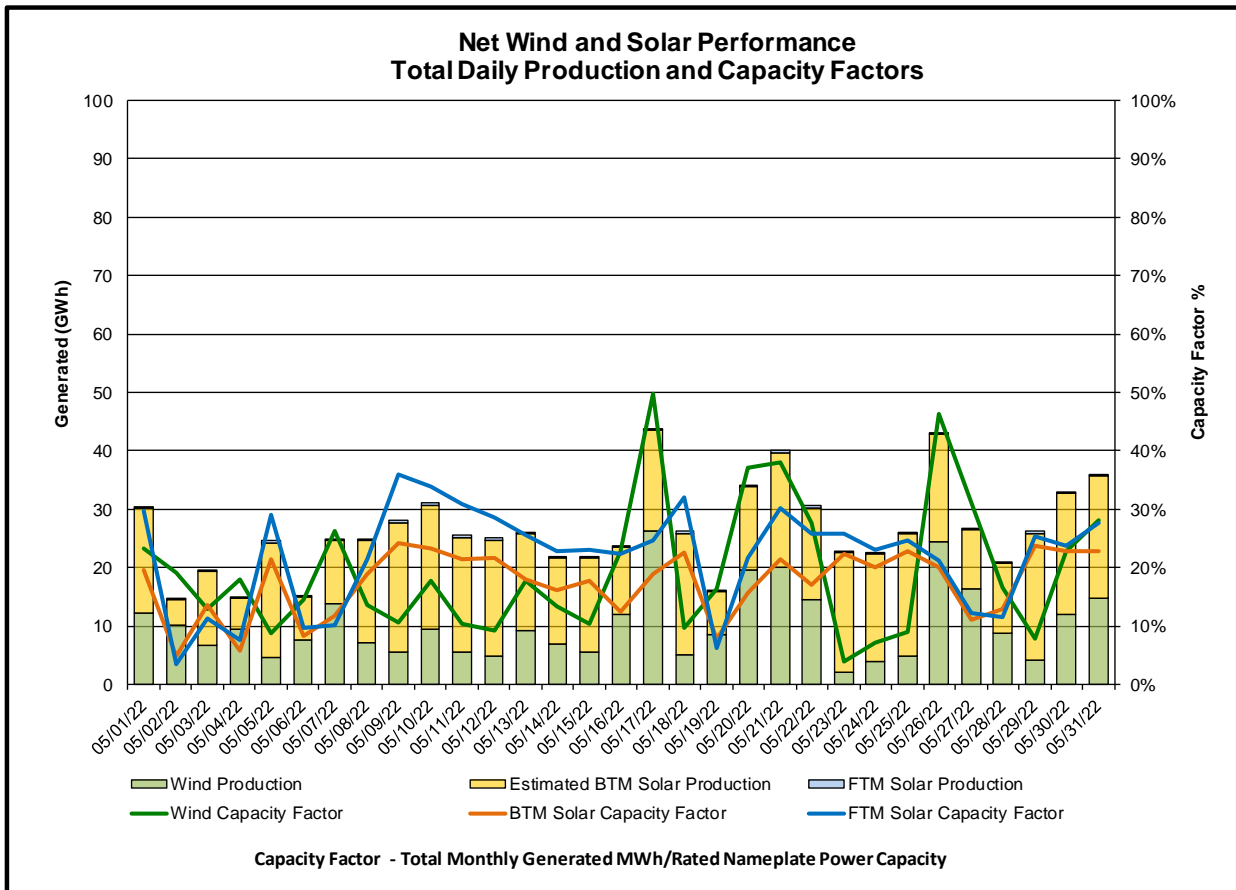
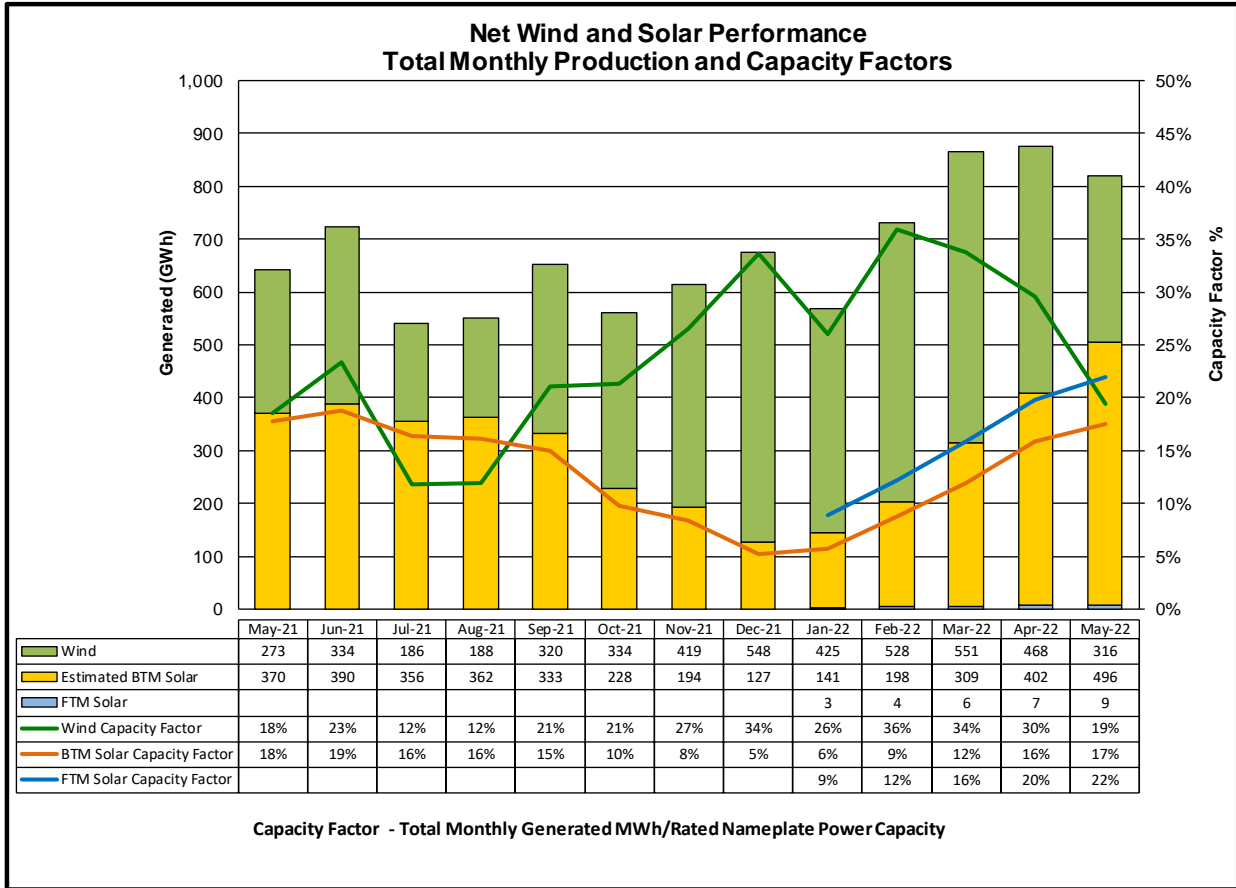


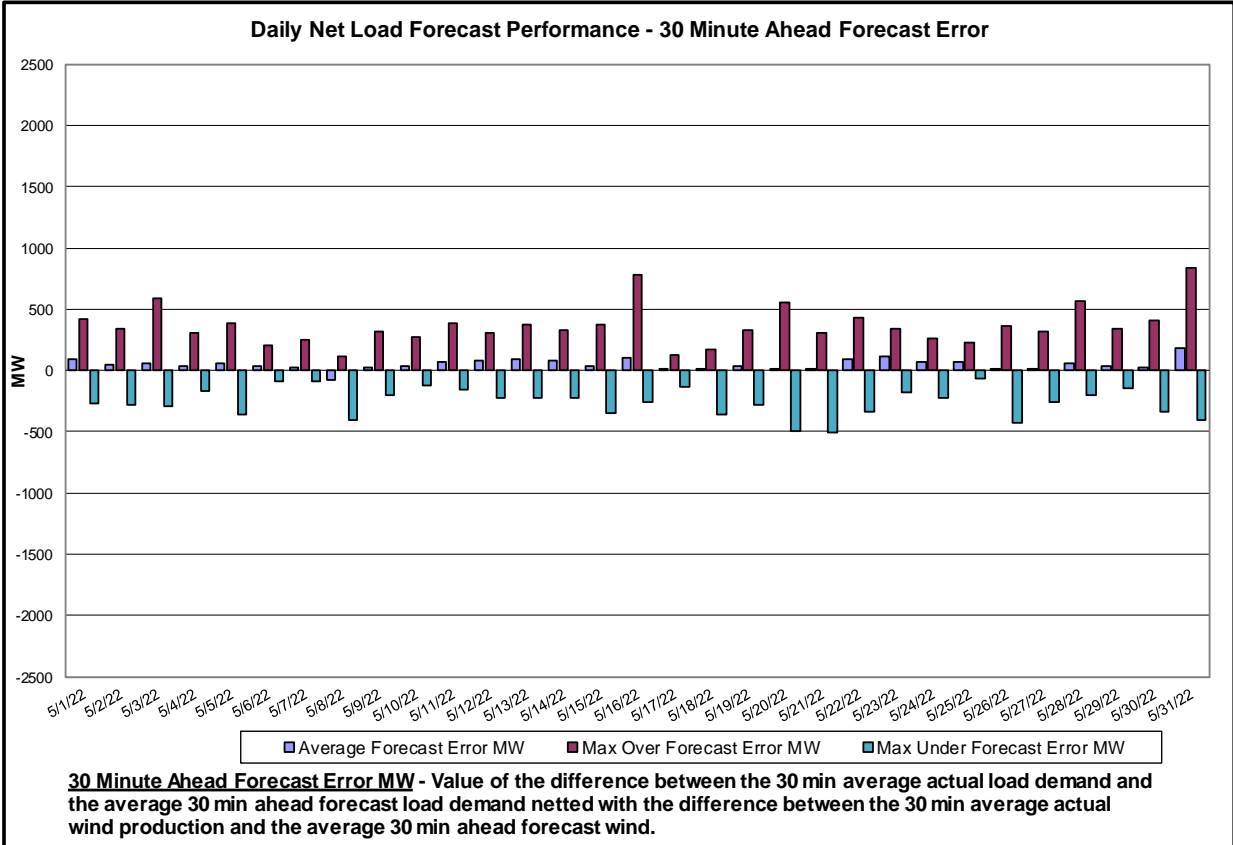
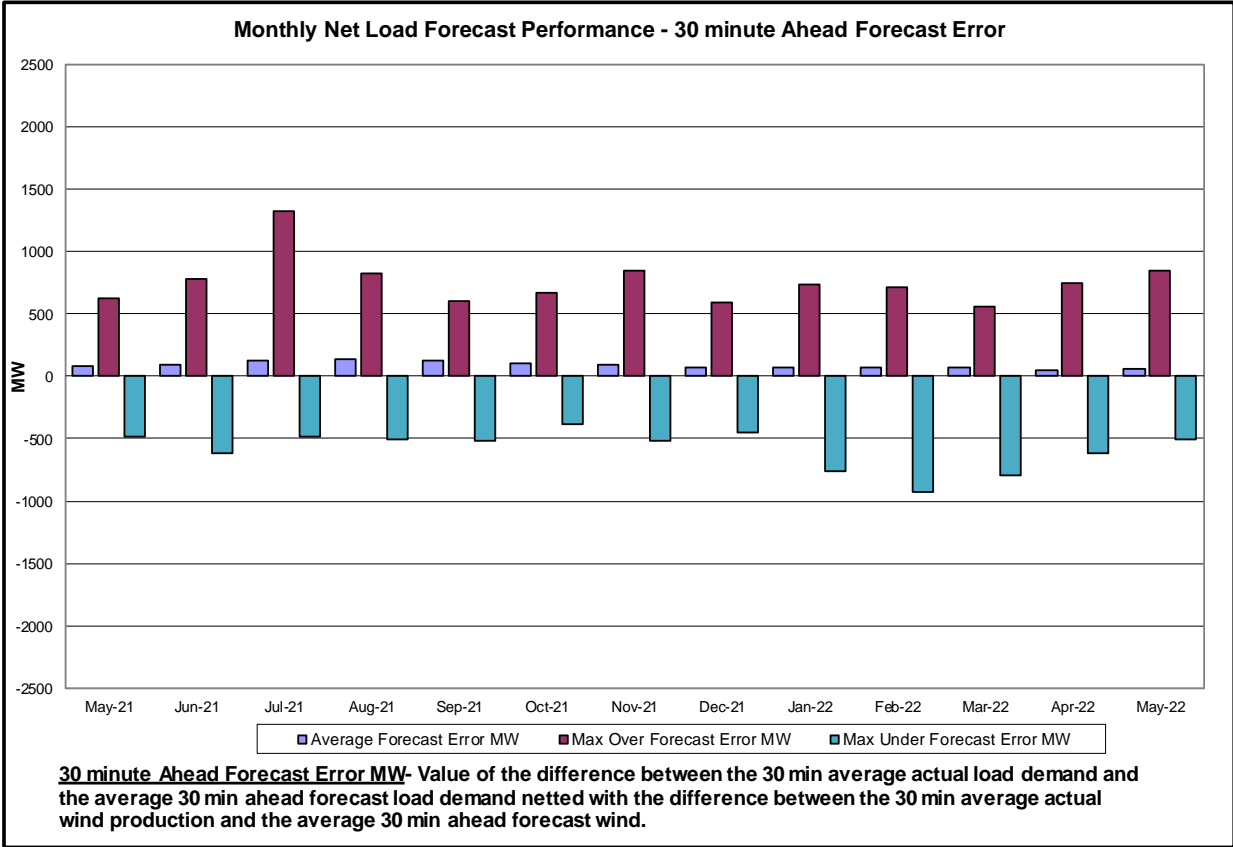


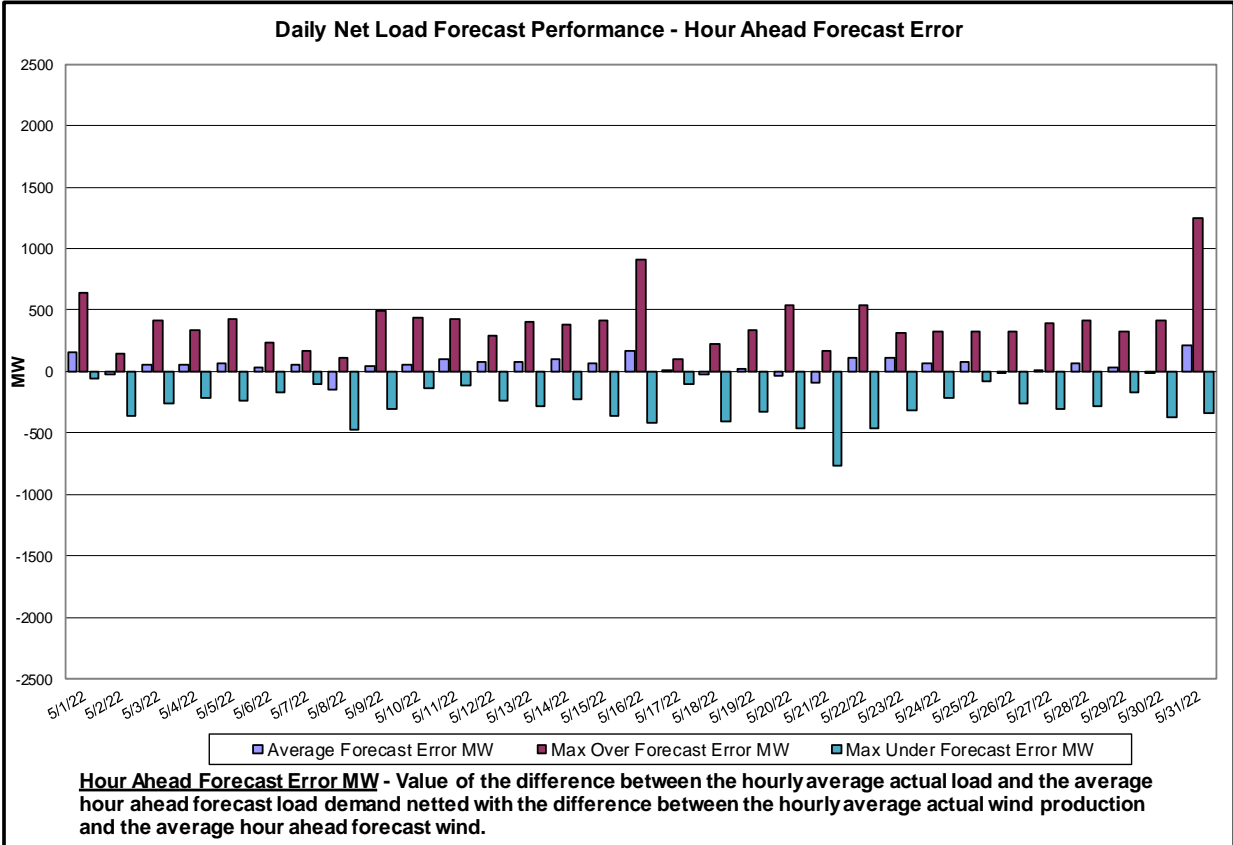
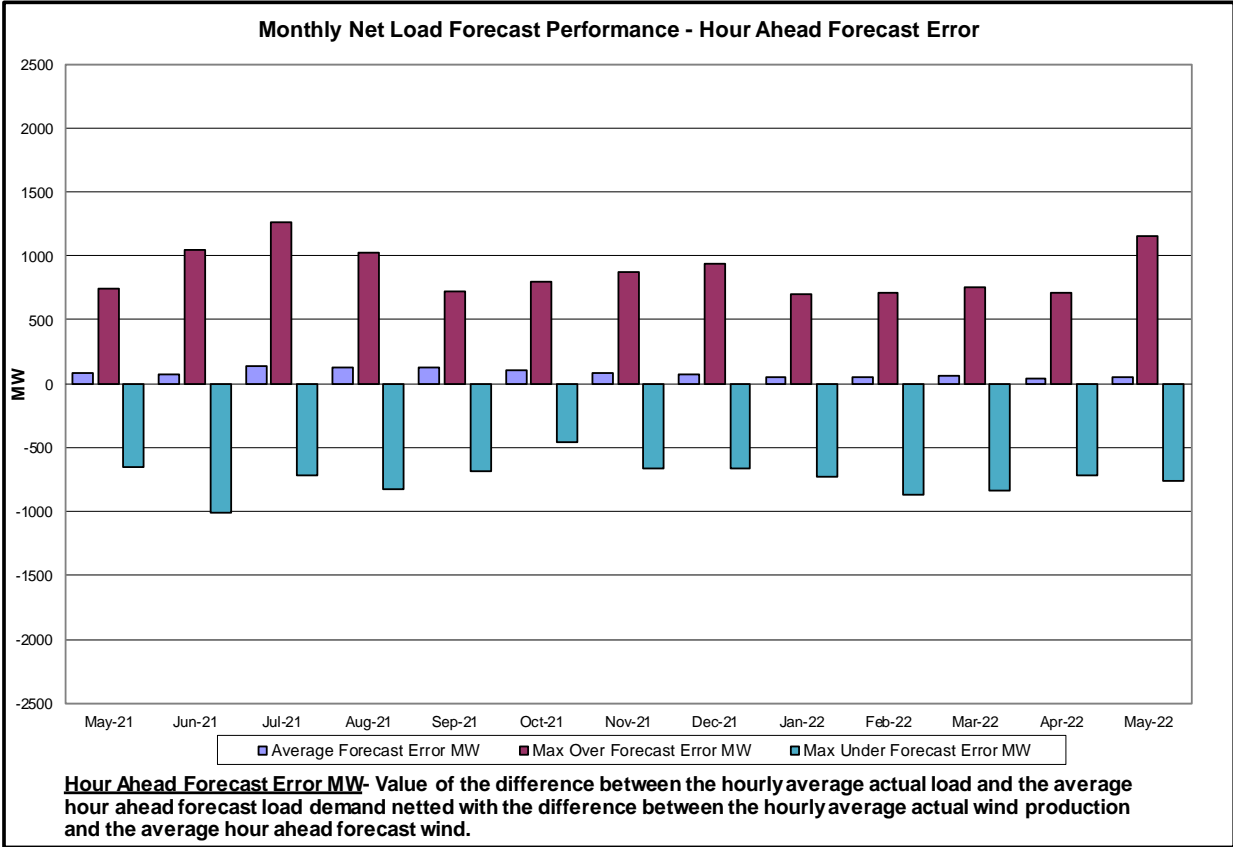




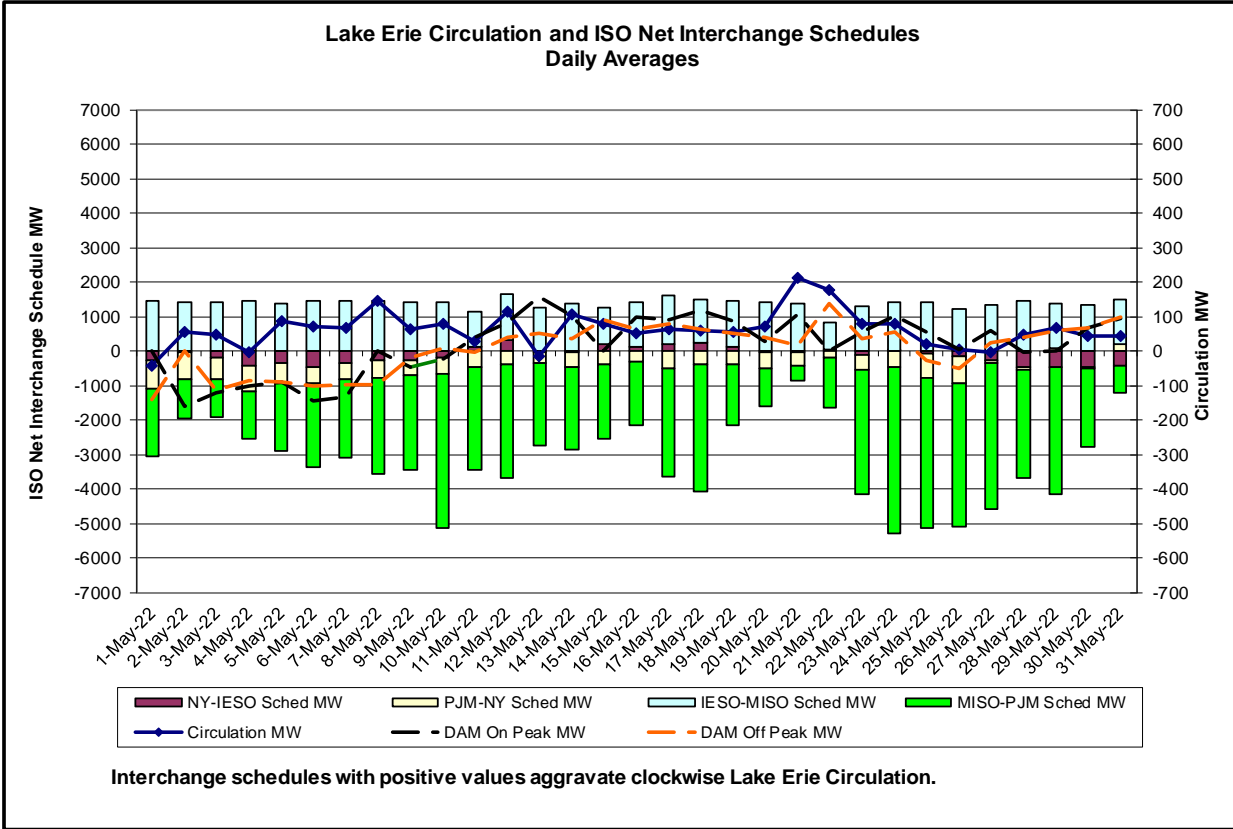
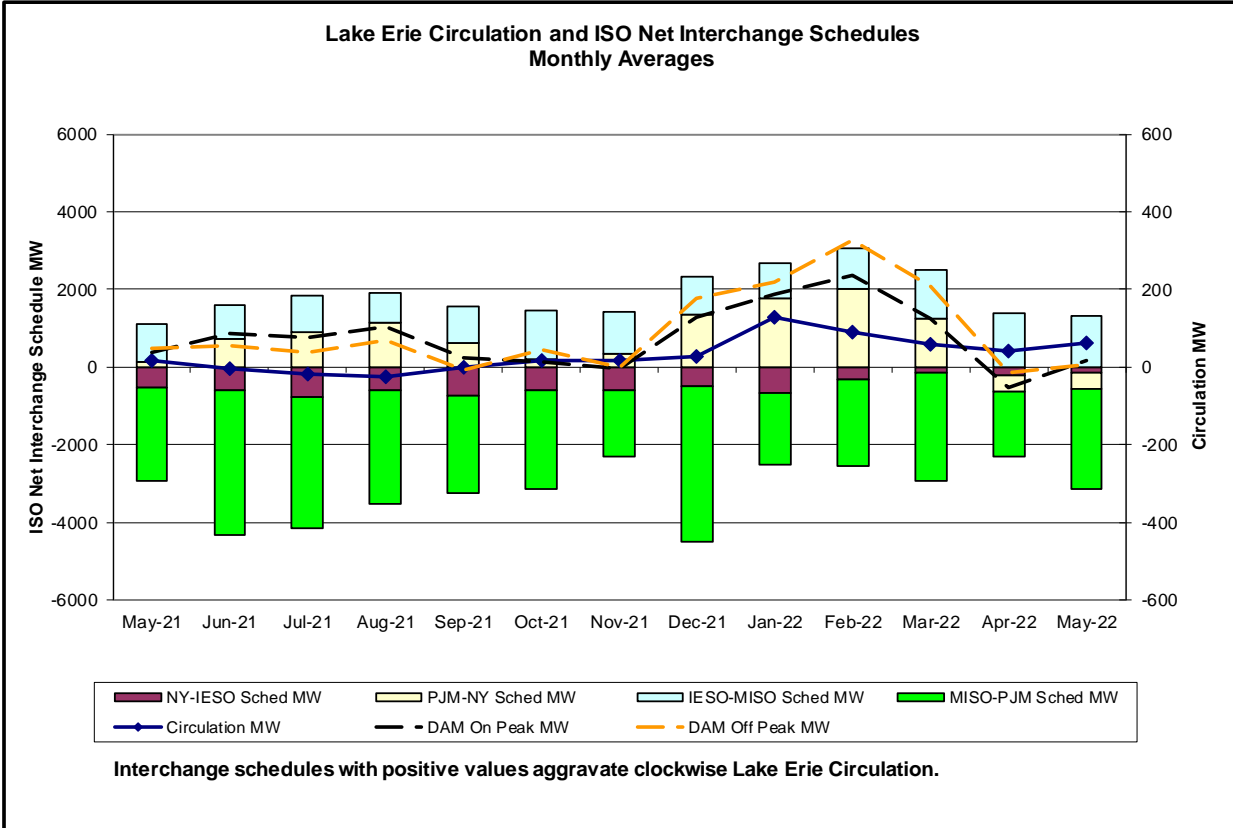




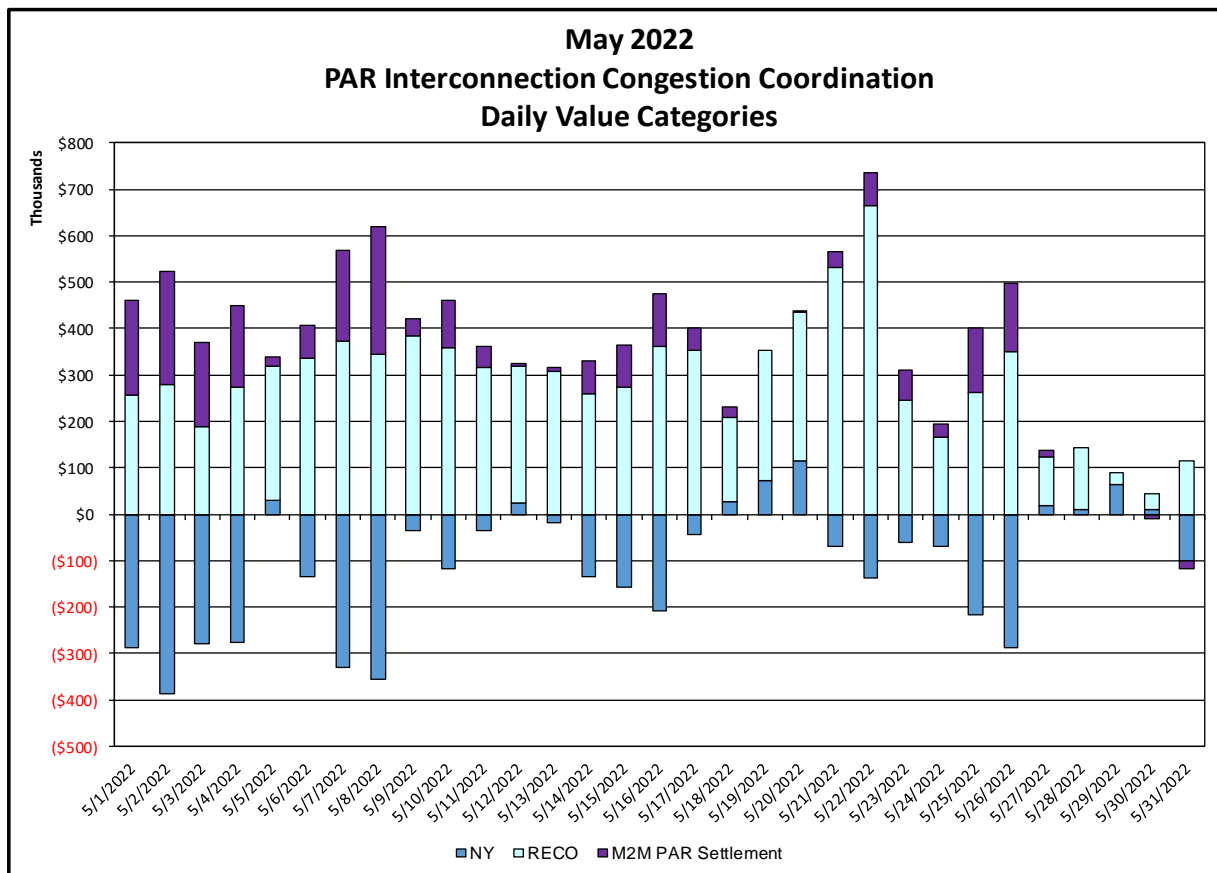
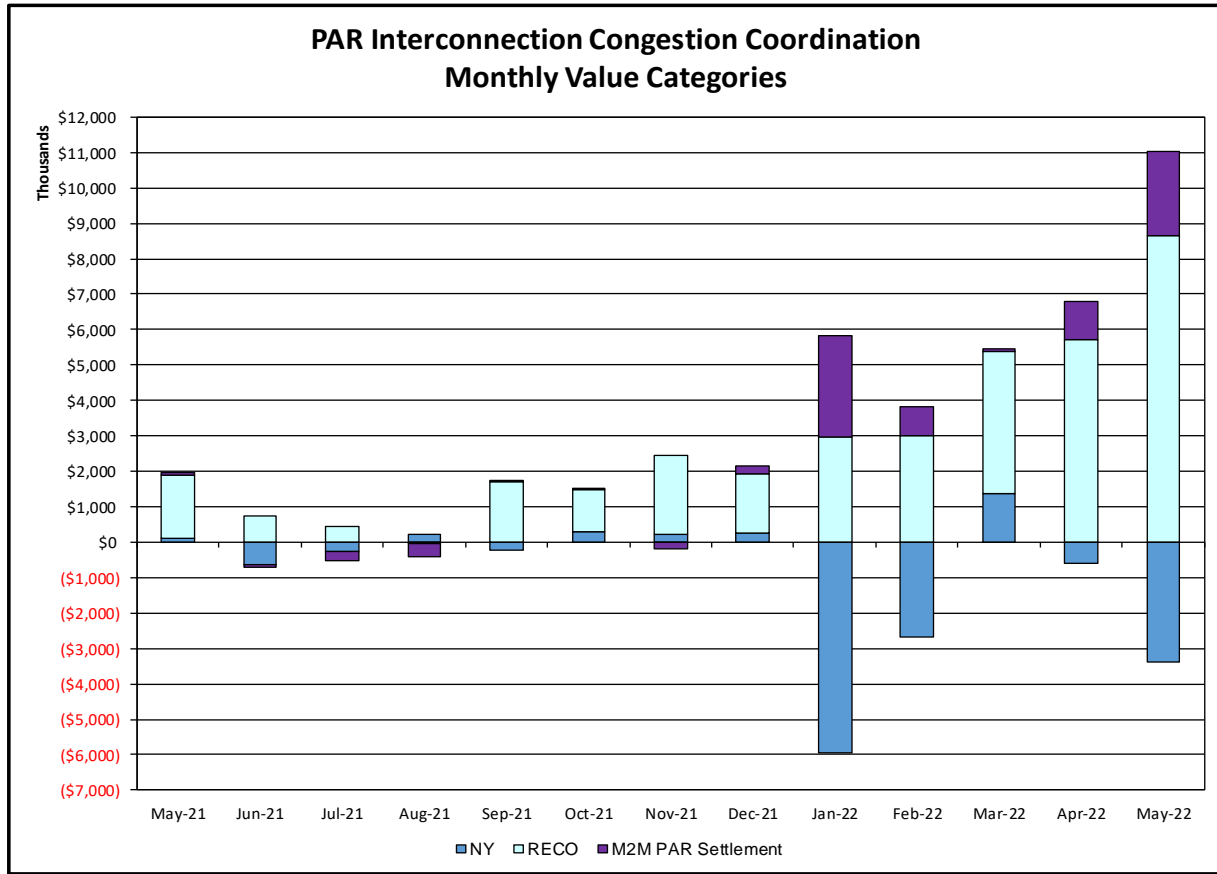






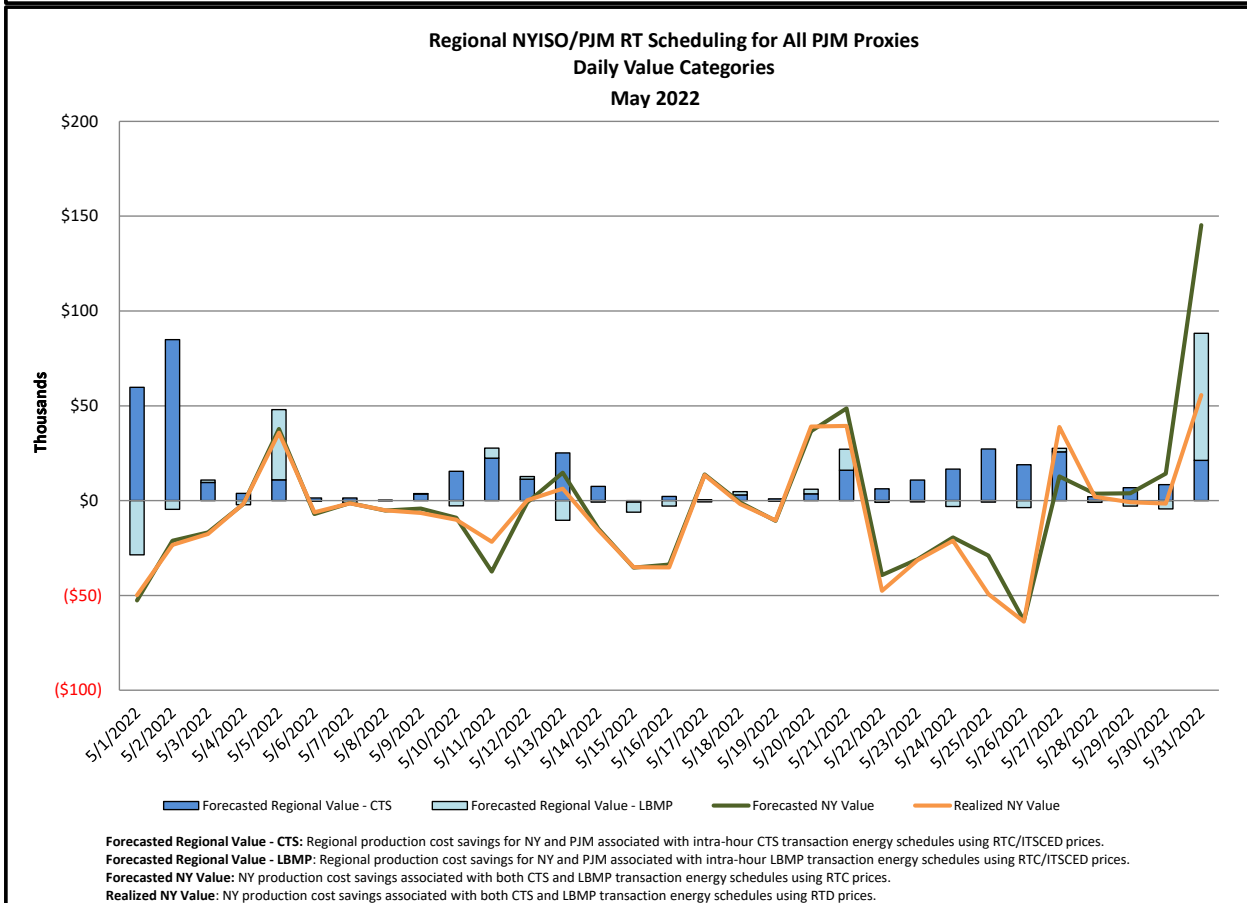
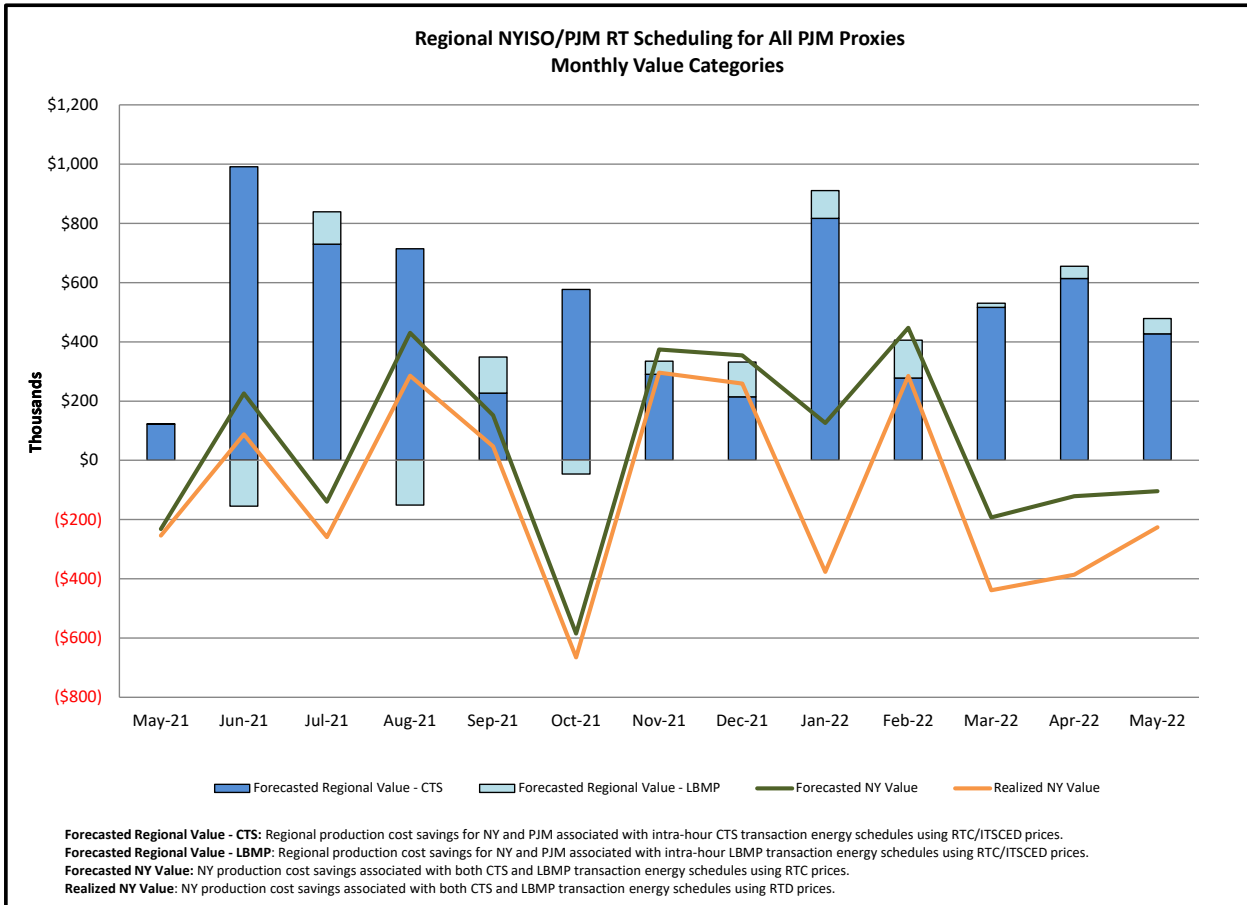


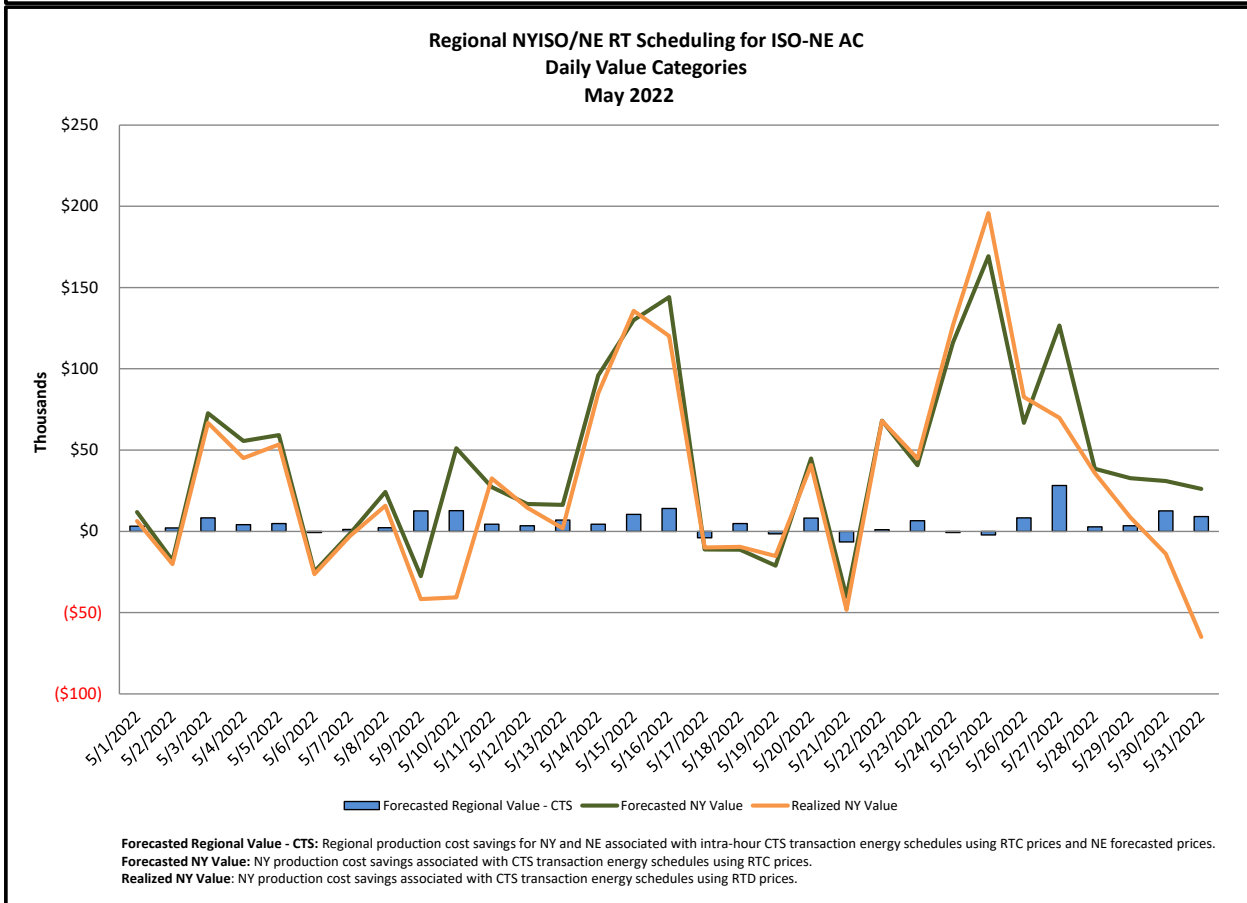
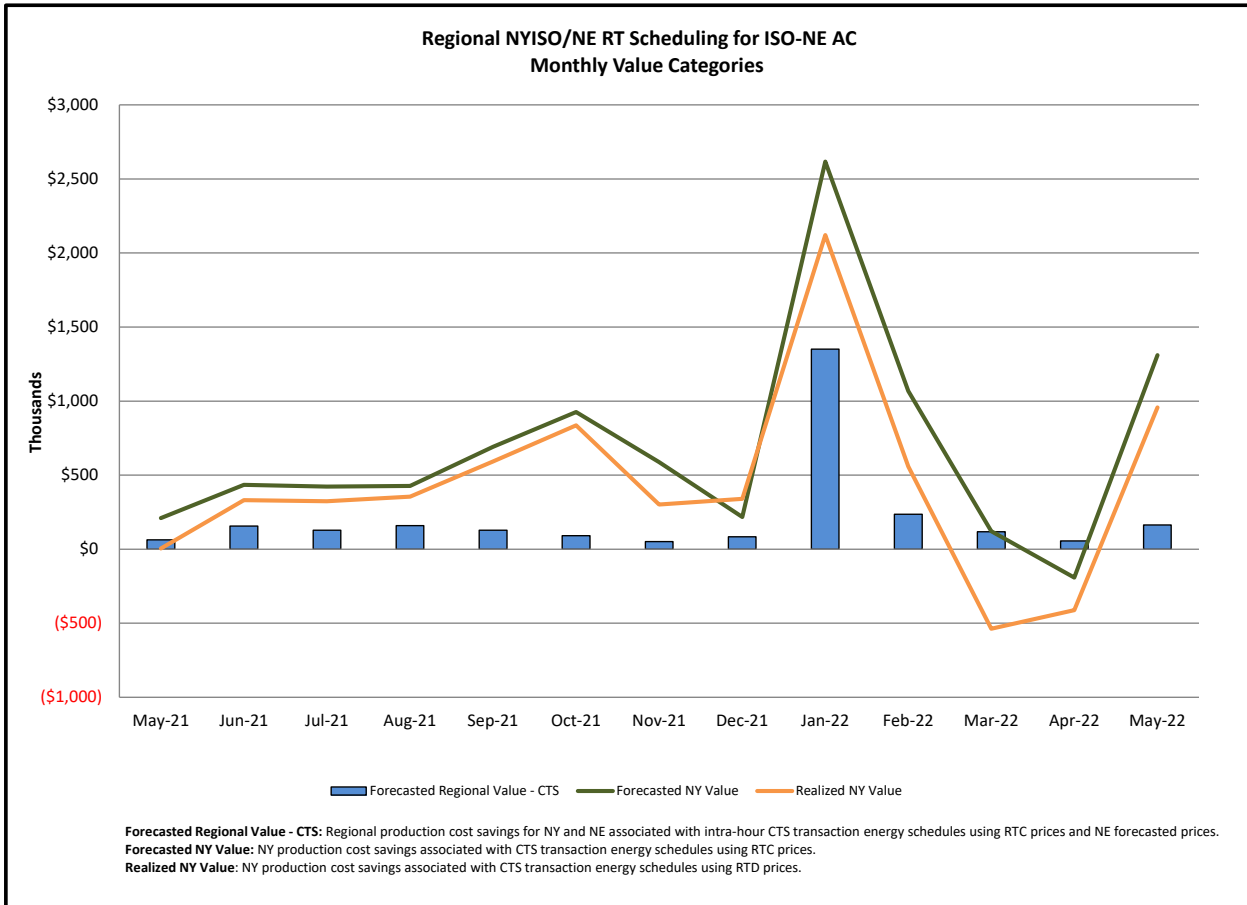
### Broader Regional Market Performance Metrics



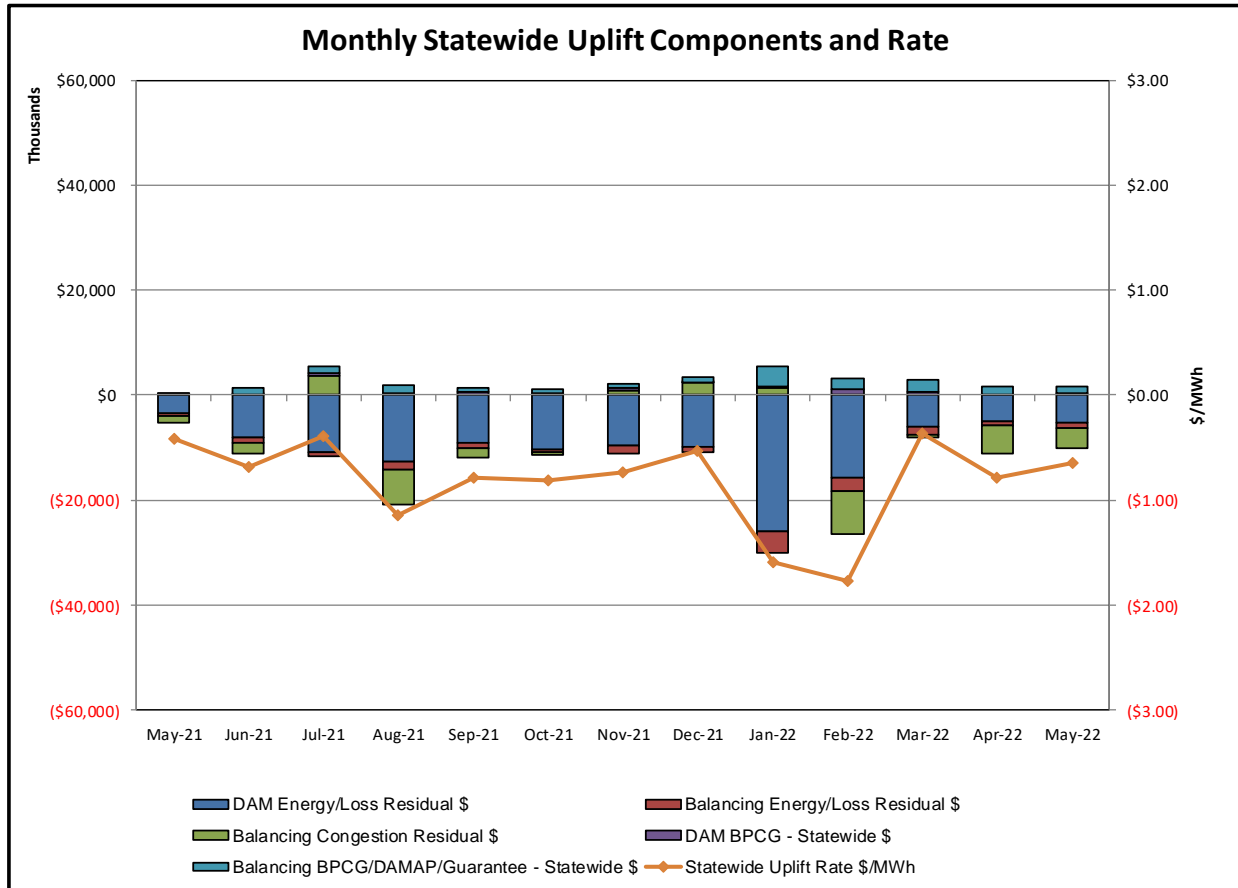
**PAR Interconnection Congestion Coordination**

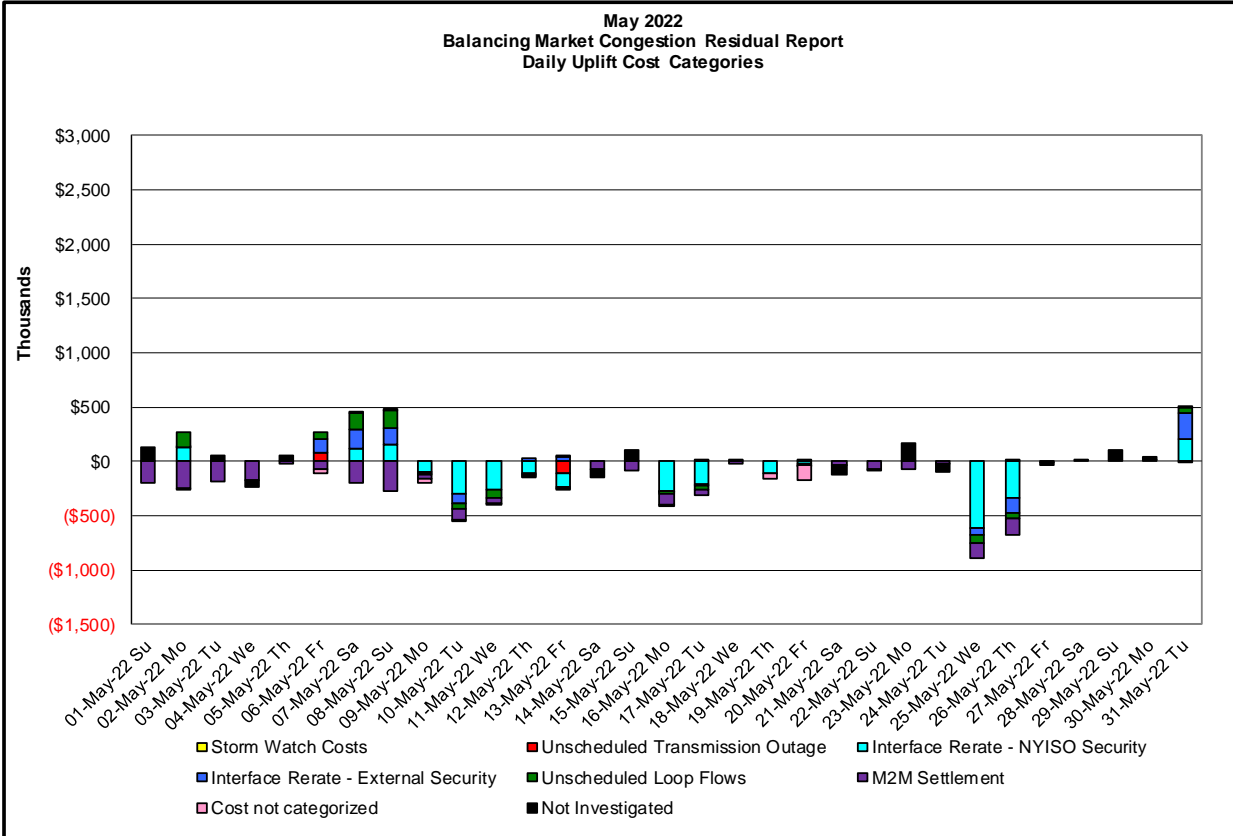
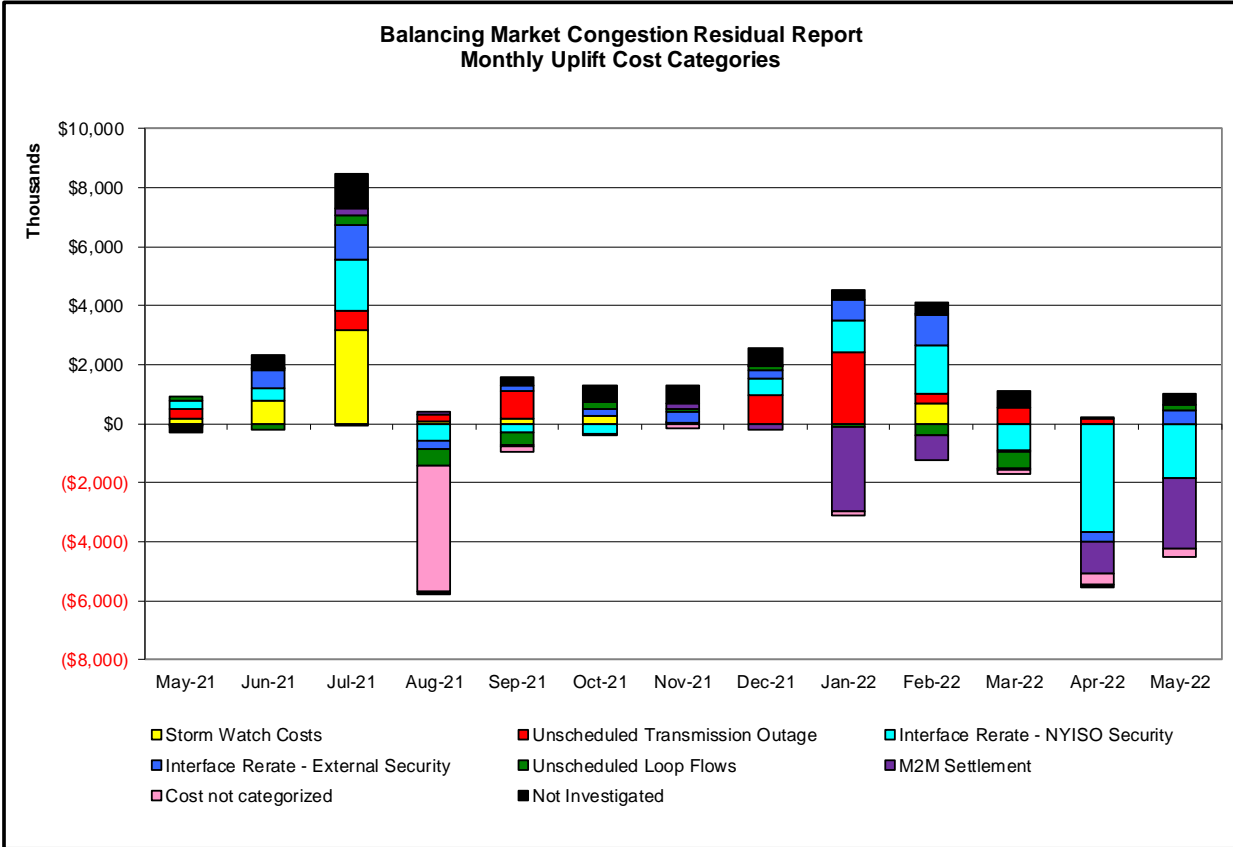
| <b><u>Category</u></b>    | <b><u>Description</u></b>  |
|---------------------------|--|
| <b>NY</b>                 | Represents the value NY realizes from Market-to-Market PAR Coordination when experiencing congestion. This is the estimated savings to NY for additional deliveries into NY  |
| <b>RECO</b>               | Represents the value of PJM's obligation to deliver 80% of service to RECO load over Ramapo 5018. This is the estimated reduction in NYCA congestion due to the PJM delivery of RECO over Ramapo 5018.   |
| <b>M2M PAR Settlement</b> | Market-to-Market PAR Coordination settlement on coordinated flowgates. Through April 2017 this value was included in the NY and RECO categories. The positive sign convention indicates settlement to NY while the negative indicates settlement to PJM. |





Market Performance Metrics





| Day's investigated in May: 2,6,7,8,9,10,11,12,13,16,17,19,20,25,26,31 |  |                              |
|---|--|------------------------------|
| Event   | Description  | May Dates                    |
|   | Early return to service Edic-Fraser 345kV (#EF24-40)   | 13                           |
|   | Forced outage Pierce Brook-Five Mile Rd 345kV (#37)  | 6                            |
|   | Derate Central East  | 2,6-9,17                     |
|   | Derate Chester-Shoemaker 138kV (#27) I/o TWR:RAMAPO (76&77&BK1112)                                 | 31                           |
|   | Derate East 13th St.-Farragut 345kV (#45) I/o SCB:SPBK(RS3):W75&99941                              | 31                           |
|   | Derate Elwood-Northport 138kV (#678)   | 31                           |
|   | Derate Goethals-Gowanus 345kV (#26) I/o Goethals-Freshkills 345kV (#21)                            | 20                           |
|   | Derate Gowanus-Greenwood 138kV (#42231) I/o TWR:GOETHALS (#22&21)                                  | 31                           |
|   | Derate Greenbush-Regeneron 115kV (#9)  | 31                           |
|   | Derate Greenbush-Regeneron 115kV (#9) I/o SEABROOK   | 31                           |
|   | Derate Lake Success-ShoreRd 138kV (#367) I/o ShoreRd-Lake Success (#368)                           | 31                           |
|   | Derate Lake Success-ShoreRd 138kV (#368) I/o ShoreRd-Lake Success (#367)                           | 31                           |
|   | Derate Northport-Pilgrim 138kV (#672)  | 31                           |
|   | Derate Porter-Rotterdam 230kV (#30) I/o SEABROOK   | 31                           |
|   | Derate West 49th St.-Springbrook 345kV (#M52) I/o SCB:SPBK(RS3):W75&99941                          | 31                           |
|   | NYCA DNI Ramp Limit  | 3,16,17,26,31                |
|   | Uprate Central East  | 2,3,6,9-13,16,17,19,20,25,26 |
|   | Uprate Cricket Valley-Pleasant Valley 345kV (#F83) I/o Cricket Valley-Pleasant Valley 345kV (#F84) | 9-13,16,17                   |
|   | Uprate Dunwoodie-Shore Rd 345kV (#Y50)   | 2,3,10,13,16,17,25           |
|   | Uprate East 179th St-Hellgate 138kV (#15053/15054)   | 16                           |
|   | Uprate Freshkills-Willowbrook 138kV (#29211)   | 11,16,25,31                  |
|   | Uprate Gowanus-Greenwood 138kV (#42232) I/o SCB:Gowanus(2):(41&42231&R4)                           | 25                           |
|   | Uprate Hudson Ave-Plymouth St 138kV (#32078)   | 16                           |
|   | Uprate NiagaraBlvd-Packard 115kV (#181-922)  | 31                           |
|   | Uprate NiagaraBlvd-Packard 115kV (#181-922) I/o GARDNVLA-GIRDLERD 115kV (#705)                     | 31                           |
|   | Uprate NiagaraBlvd-Packard 115kV (#181-922) I/o TWR:PACKARD (#77&78)                               | 31                           |
|   | Uprate Pleasant Valley-Leeds 345kV (#92) I/o Leeds-Hurlave 345kV (#301)                            | 17,19,20                     |
|   | HQ_CEDARS-NY Scheduling Limit  | 31                           |
|   | HQ_CHAT-NY Scheduling Limit  | 12,19,31                     |
|   | IESO_AC-NY Scheduling Limit  | 12,13,31                     |
|   | NE_AC Active DNI Ramp Limit  | 3,10,13,16,17,20,25,26,31    |
|   | NE_AC-NY Scheduling Limit  | 9,10,31                      |
|   | NE_NNC1385 - NY Scheduling Limit   | 17,26,31                     |
|   | PJM_AC-NY Scheduling Limit   | 2,6-8,10,13,20,26            |
|   | Lake Erie Circulation, DAM-RTM exceeds +/-125MW; Central East                                      | 2,3,6-13,16,17,20,25,26,31   |
|   | Lake Erie Circulation, DAM-RTM exceeds +/-125MW; West  | 2,10-13,26,31                |

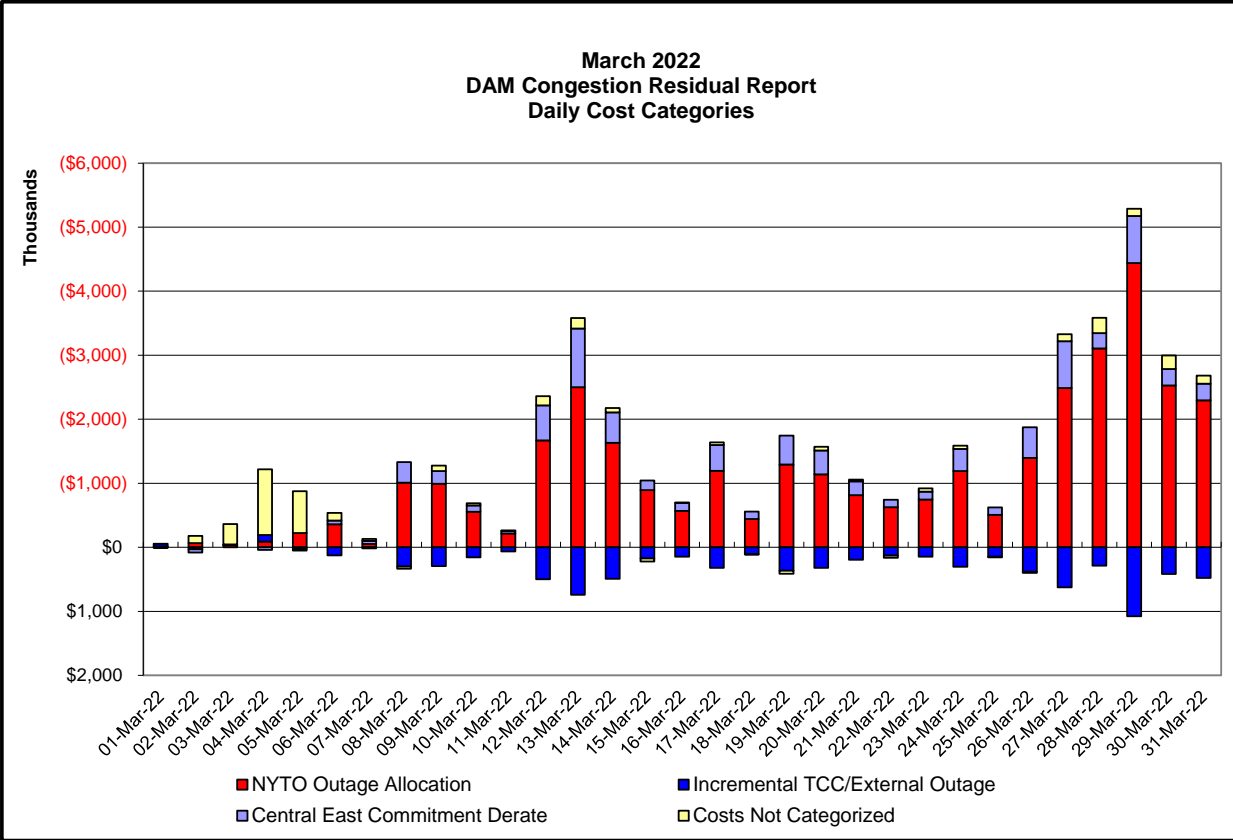
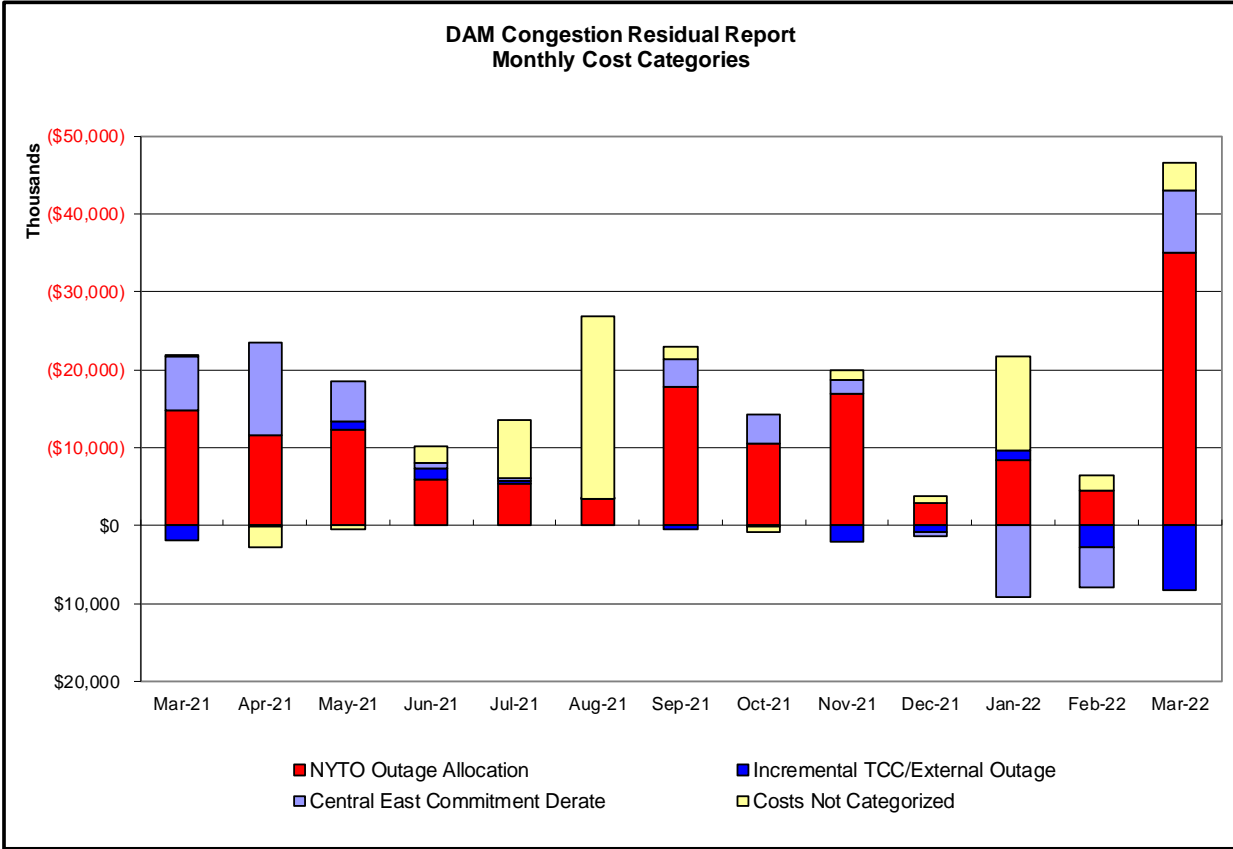


**Real-Time Balancing Market Congestion Residual (Uplift Cost) Categories**

| <u>Category</u>                            | <u>Cost Assignment</u> | <u>Events Types</u>   | <u>Event Examples</u>   |
|--|------------------------|---|---|
| Storm Watch                                | Zone J                 | Thunderstorm Alert (TSA)  | TSA Activations   |
| Transmission Outage Mismatch               | Market-wide            | Changes in DAM to RTM transfers related to transmission outage mismatch                         | Forced Line Outage, Unit AVR Outages, Early Line Return from Outage |
| Interface/Facility Rerate - NYISO Security | Market-wide            | Changes in DAM to RTM transfers not related to transmission outage                              | Interface/Facility Rerates due to RTM voltages                      |
| Interface Rerate - External Security       | Market-wide            | Changes in DAM to RTM transfers related to External Control Area Security Events                | TLR Events, External Transaction Curtailments                       |
| Unscheduled Loop Flows                     | Market-wide            | Changes in DAM to RTM unscheduled loop flows impacting NYISO Interface transmission constraints | DAM to RTM Lake Erie Loop Flows exceeding +/- 125 MW                |
| M2M Settlement                             | Market-wide            | Settlement result inclusive of coordinated redispatch and Ramapo flowgates                      |   |

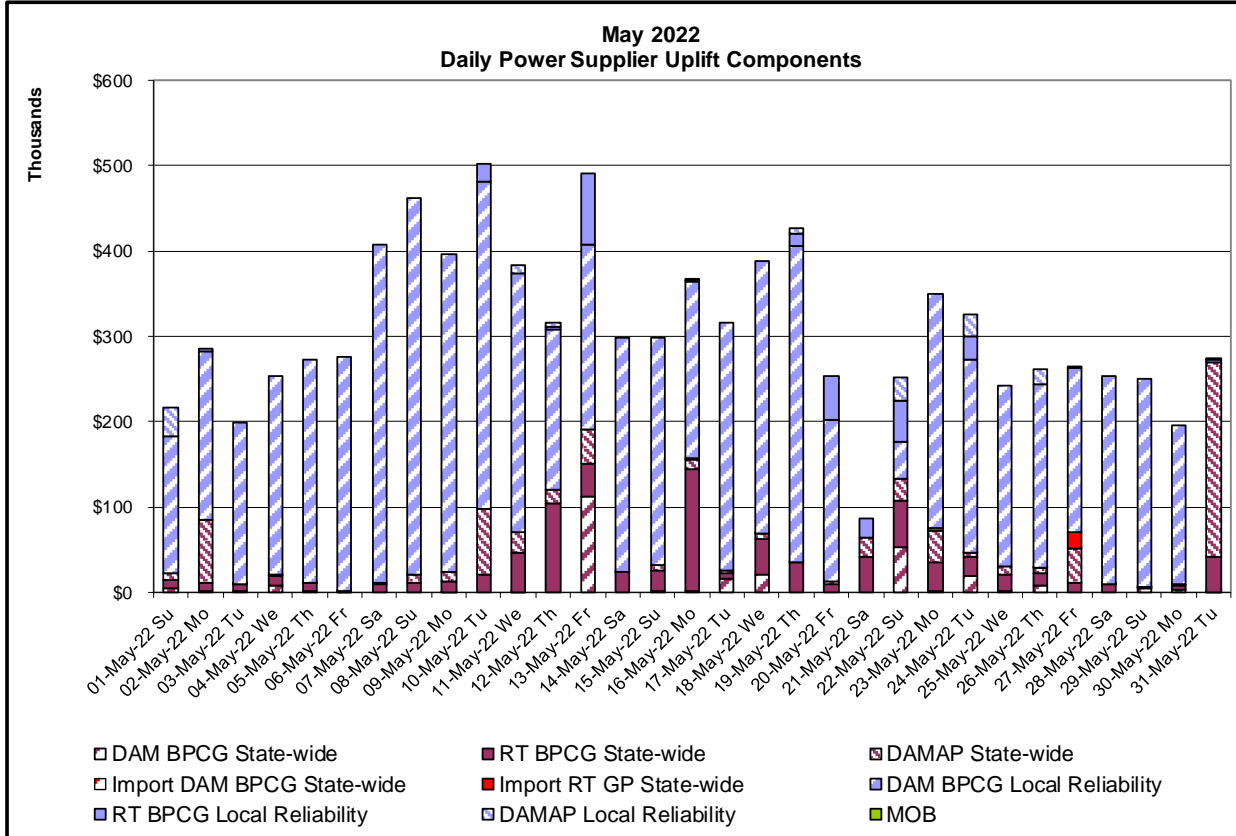
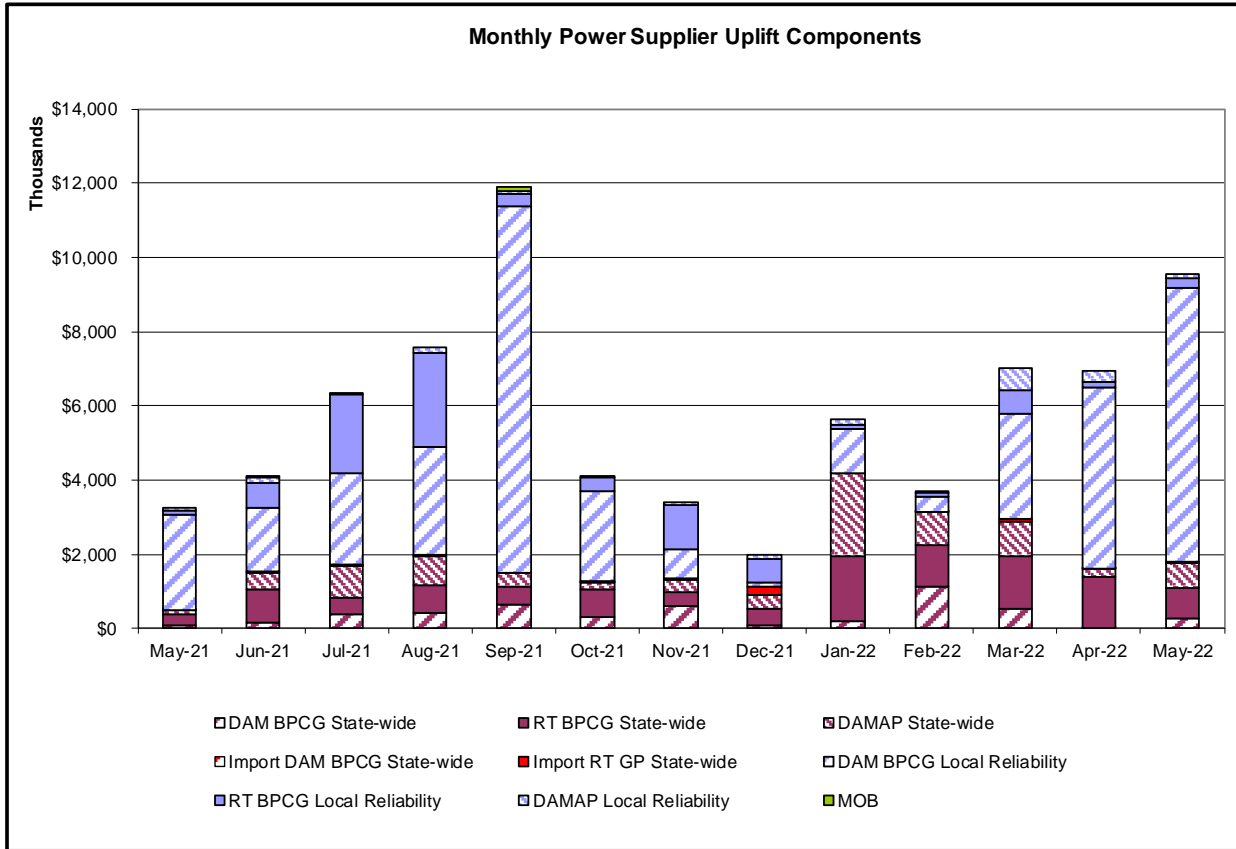
**Monthly Balancing Market Congestion Report Assumptions/Notes**

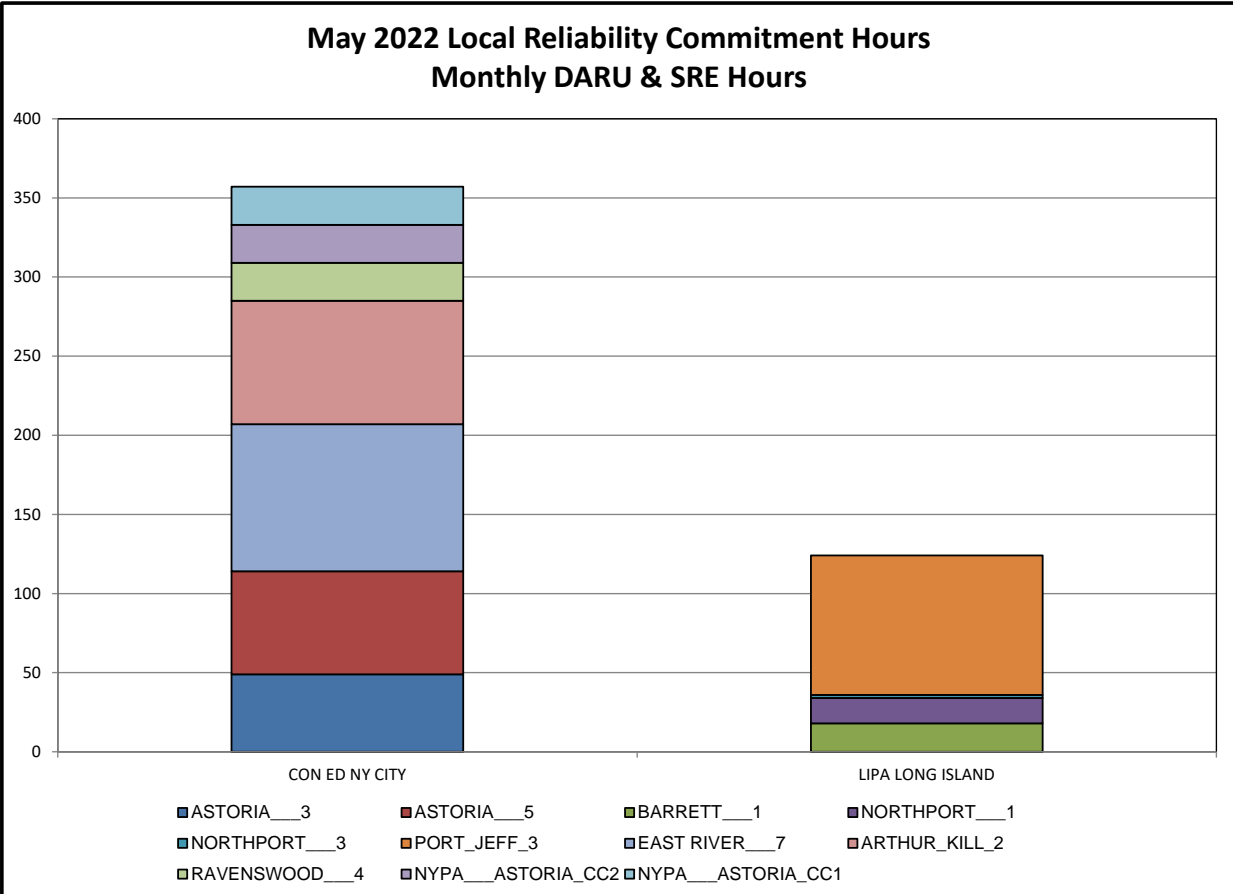
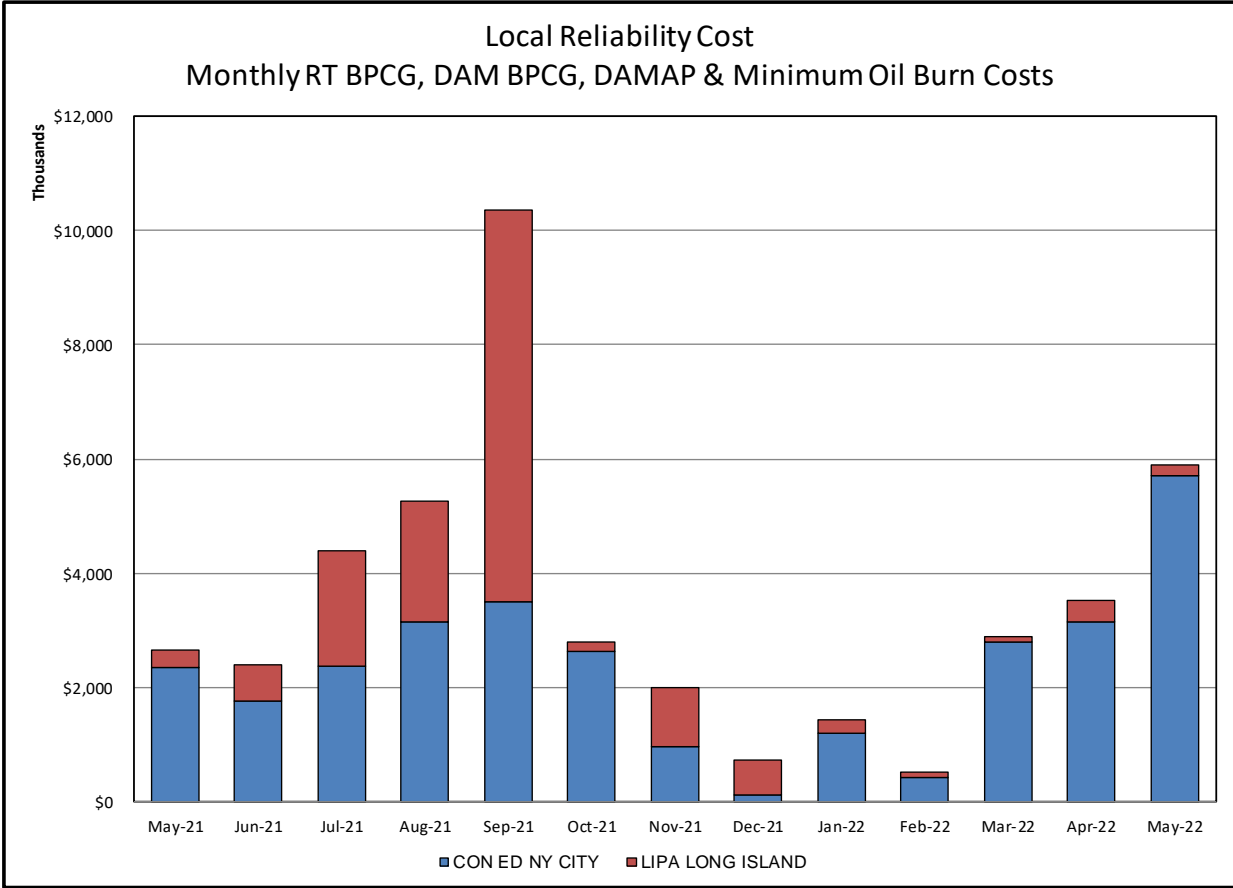
- 1) Storm Watch Costs are identified as daily total uplift costs
- 2) Days with a value of BMCR less M2M Settlement of \$100K/HR, shortfall of \$200K/Day or more, or surplus of \$100K/Day or more are investigated.
- 3) Uplift costs associated with multiple event types are apportioned equally by hour

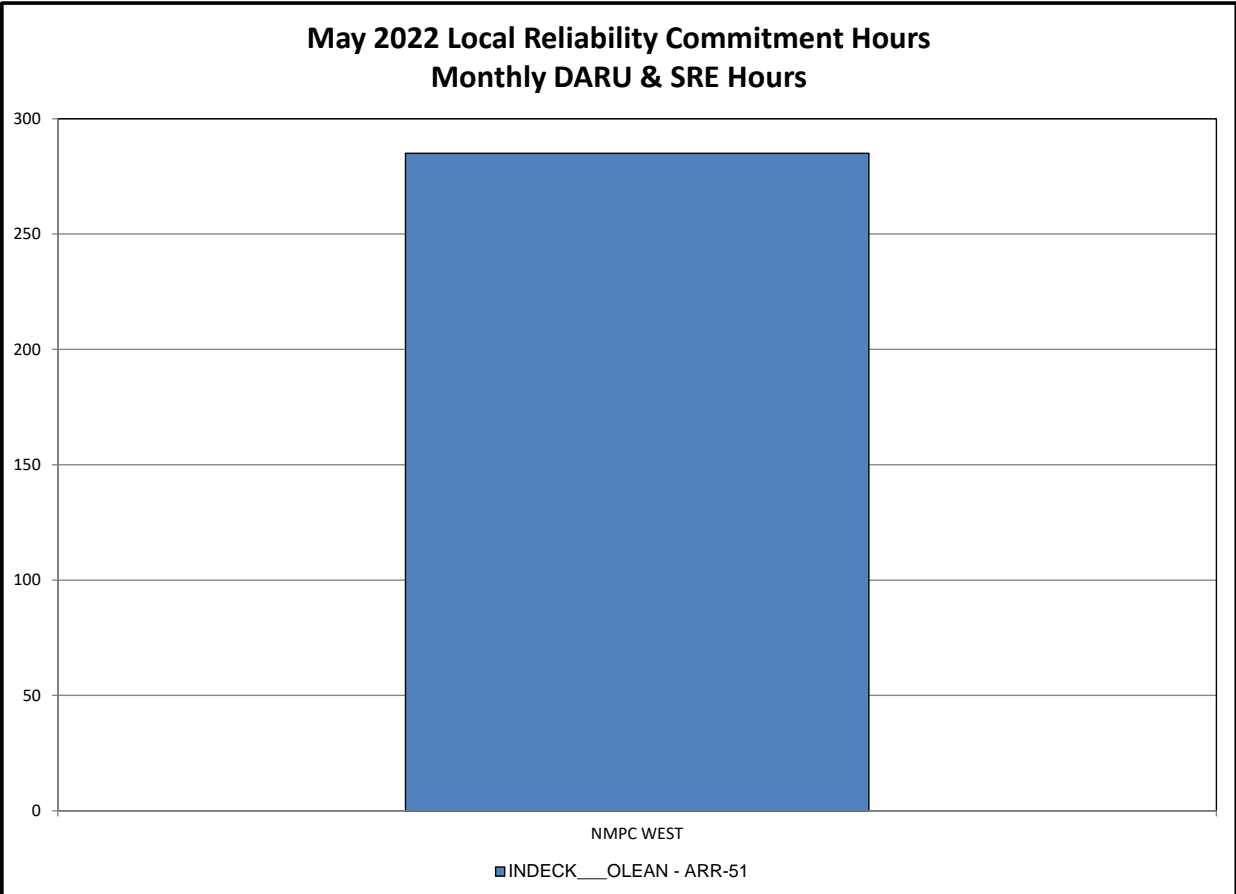
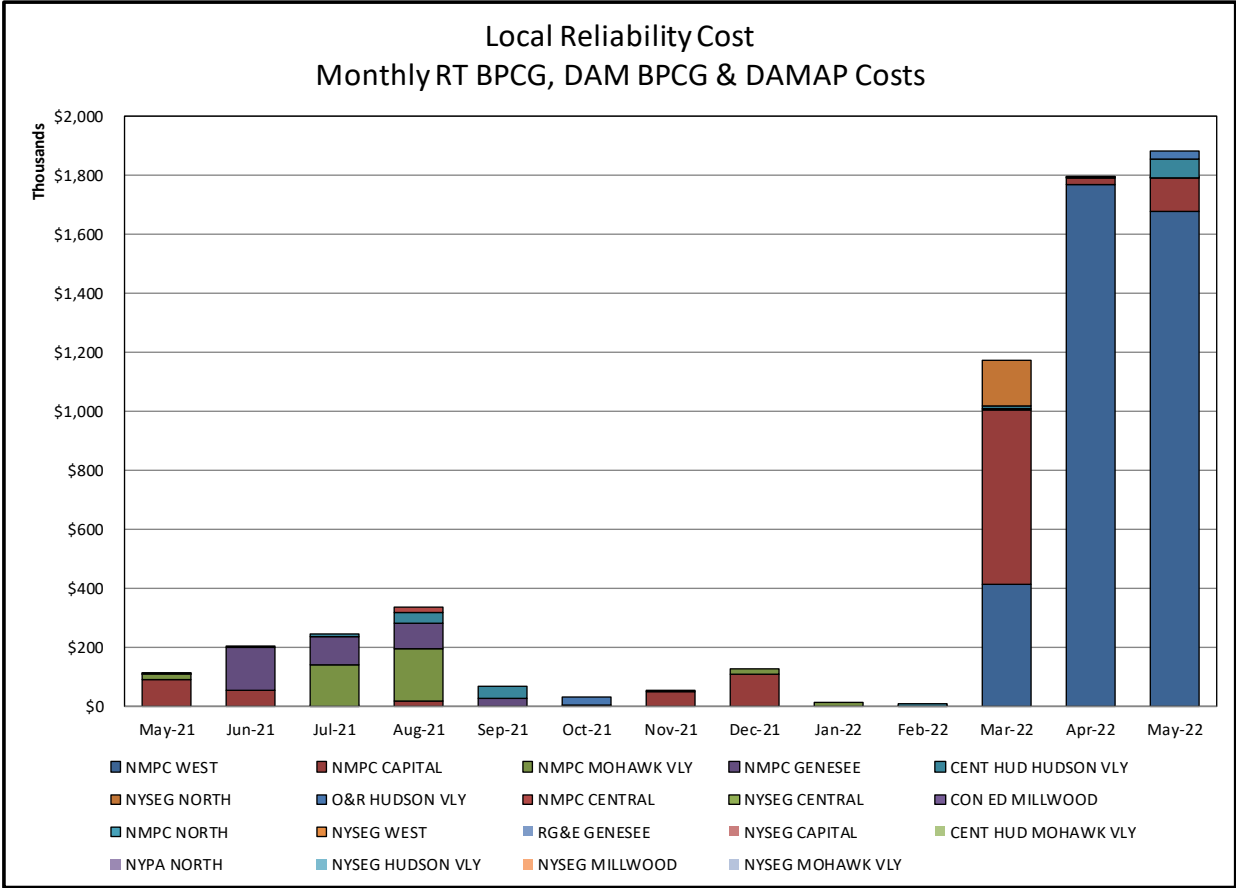


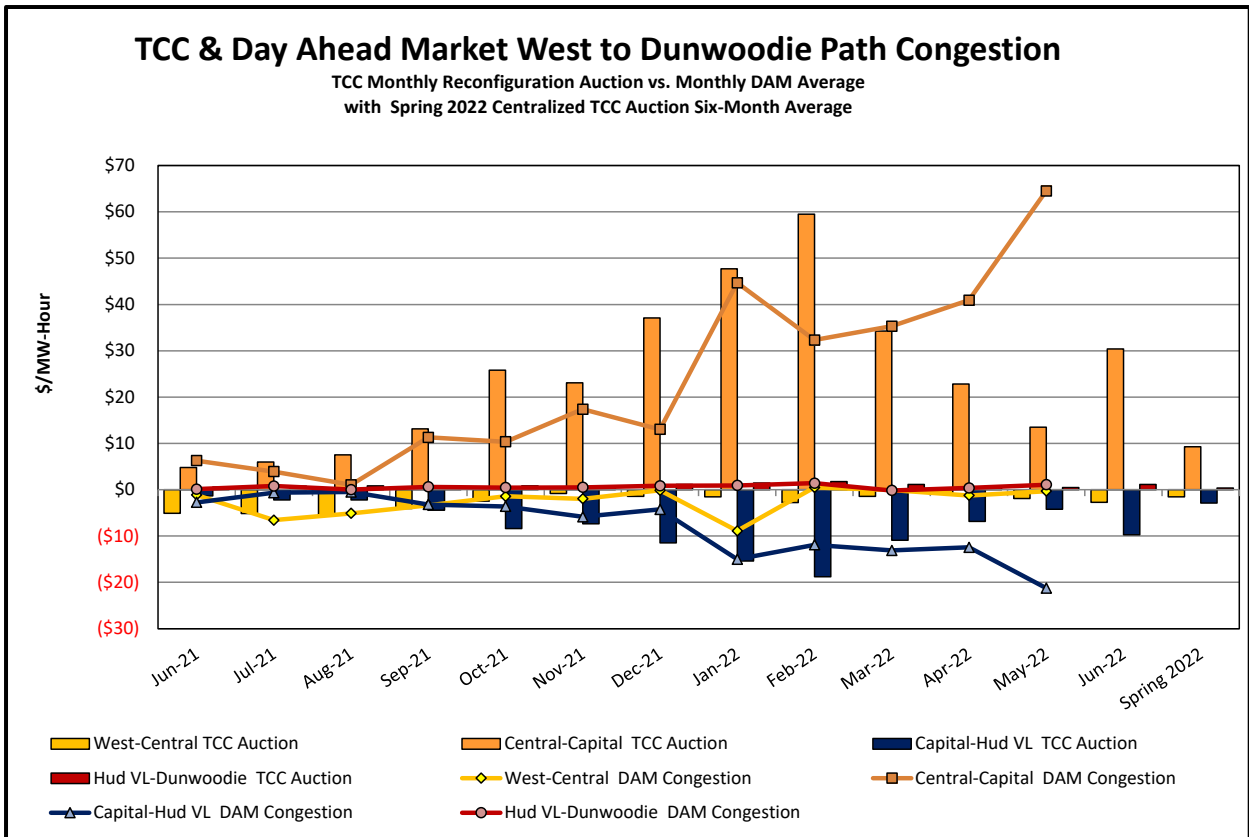
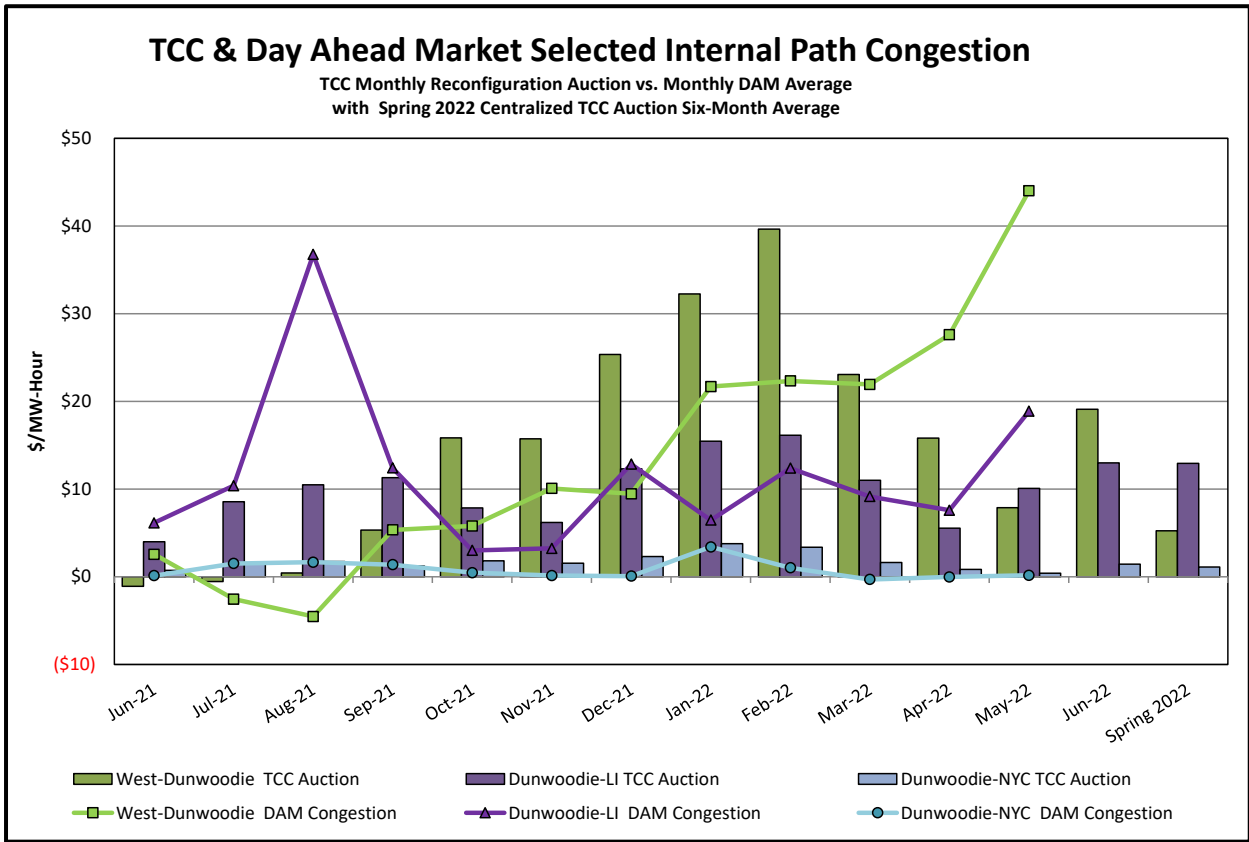
**Day-Ahead Market Congestion Residual Categories**

| <u>Category</u>                         | <u>Cost Assignment</u>              | <u>Events Types</u>  | <u>Event Examples</u>  |
|---|-------------------------------------|--|--|
| NYTO Outage Allocation                  | Responsible TO                      | Direct allocation to NYTO's responsible for transmission equipment status change.  | DAM scheduled outage for equipment modeled in-service for the TCC Auction. |
| Incremental TCC/External Outage Impacts | All TO by Monthly Allocation Factor | Allocation associated with transmission equipment status change caused by change in status of external equipment or change in status of equipment associated with Incremental TCC. | Tie line required out-of-service by TO of neighboring control area.        |
| Central East Commitment Derate          | All TO by Monthly Allocation Factor | Reductions in the DAM Central East_VC limit as compared to the TCC Auction limit, which are not associated with transmission line outages.   |  |









### TCC & Day Ahead Market Selected External Path Congestion

TCC Monthly Reconfiguration Auction vs. Monthly DAM Average  
with Spring 2022 Centralized TCC Auction Six-Month Average

